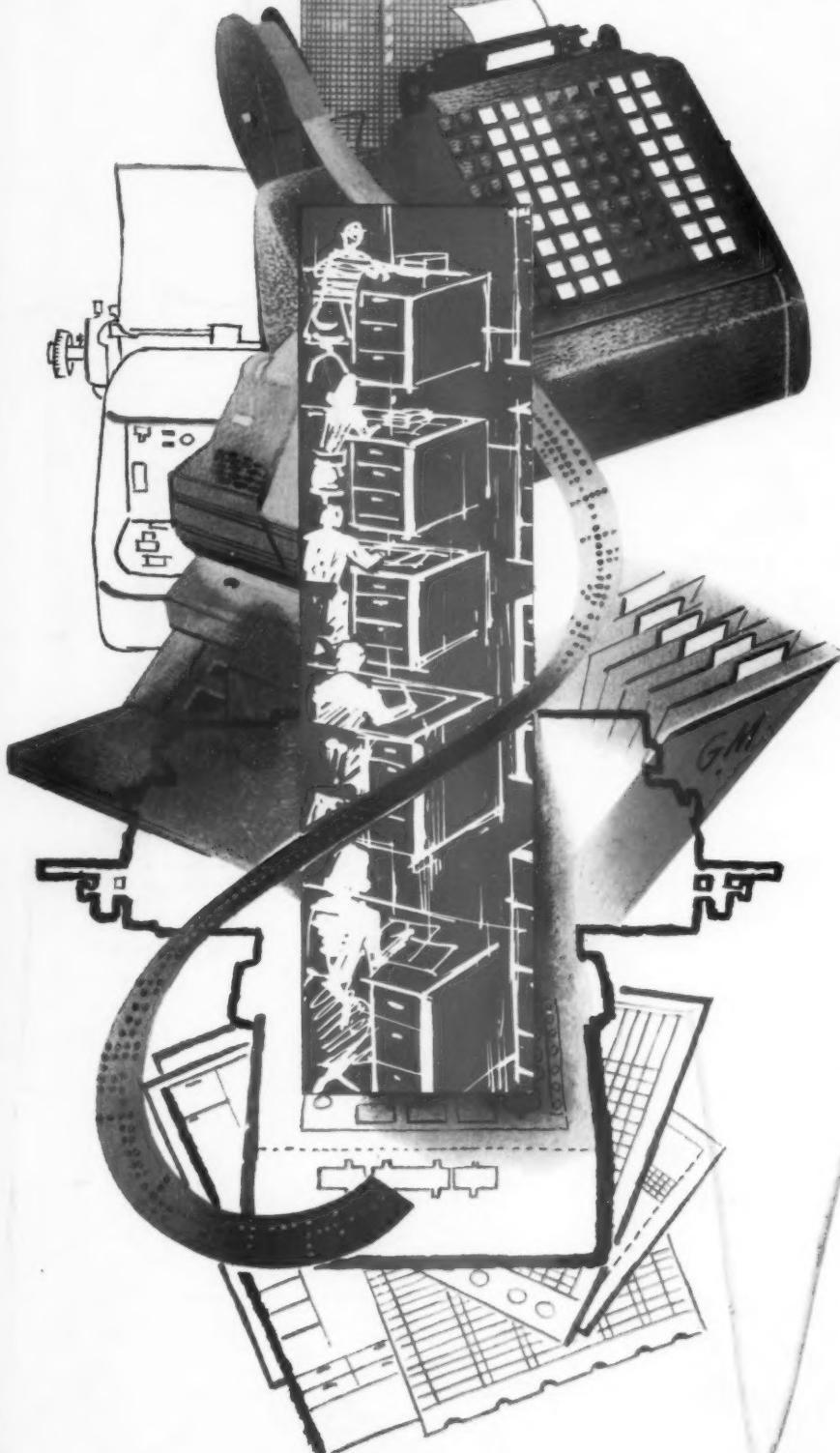


PURCHASING

Published for and read by the men who buy for American Industry



Better Tools
for a Bigger

Buying Job
CIRCULARY
OCT 9 1956
DETROIT *ck*

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page 75

Beating Paperwork Problems
page 87

Automated Inventory Control
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Good Office Layout
page 92

Check List for Forms Analysis
page 120

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VR V.4120-756

"WE RECOMMEND TEXACO TO ALL OUR CUSTOMERS"

... Kenneth Lindsay, Executive Vice President and Director of Sales, Iowa Manufacturing Company, Cedar Rapids, Iowa.

"WE STARTED USING **TEXACO** over twenty years ago," says Mr. Lindsay, "because of the unusual help we got from Texaco Lubrication Engineering Service in solving our lubrication problems.

"Ever since then, the continued high calibre service rendered by Texaco Lubrication Engineers and the always outstanding performance of Texaco Lubricants have amply justified our recommending Texaco to our customers through instruction plates on every piece of our equipment—regardless of what it is or where it goes."

All we can add to Mr. Lindsay's story is this: Texaco Lubricants and Lubrication Engineering Service can be a big help to you—in the manufacture of your product and assuring its successful operation in the field. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Cedarapids		BRONZE BEARING JAW CRUSHER
SERIAL NO.	SIZE	IOWA MANUFACTURING COMPANY
CEDAR RAPIDS, IOWA		
Lubrication		
PITMAN BEARINGS	KEEP LARGE GREASE RESERVOIR 2/3 FULL	Above 20°F — MARFAK 1 32-90°F — MARFAK 0 0-32°F — MARFAK 00 Below 0°F — REGAL STARFAK 2
SIDE BEARINGS	EVERY 8 HOURS CHECK LUBRICANT LEVEL IN OIL CUPS, ADD LUBRICANT TO KEEP CUPS 2/3 FULL	PINNACLE CYLINDER OIL
DRAIN PLUG	EVERY 96 HOURS, DRAIN FLUSH, AND REFILL WITH RECOMMENDED LUBRICANT	FLUSH WITH TEXACO MOTOR OIL SAE 10W

• Cedarapids' equipment includes crushers, screens, driers, hammermills and other heavy duty equipment.

WORLD-WIDE SERVICE

If your business includes foreign operations, remember that Texaco quality and service are available throughout the free world. Read what Mr. Lindsay of Iowa Manufacturing Company says: "We have wide foreign sales and distribution and have found that the Texaco trade-mark is recognized everywhere as a symbol of quality. This plus the alertness of Texaco's foreign affiliates in providing proper lubricants and service have been most helpful to us."



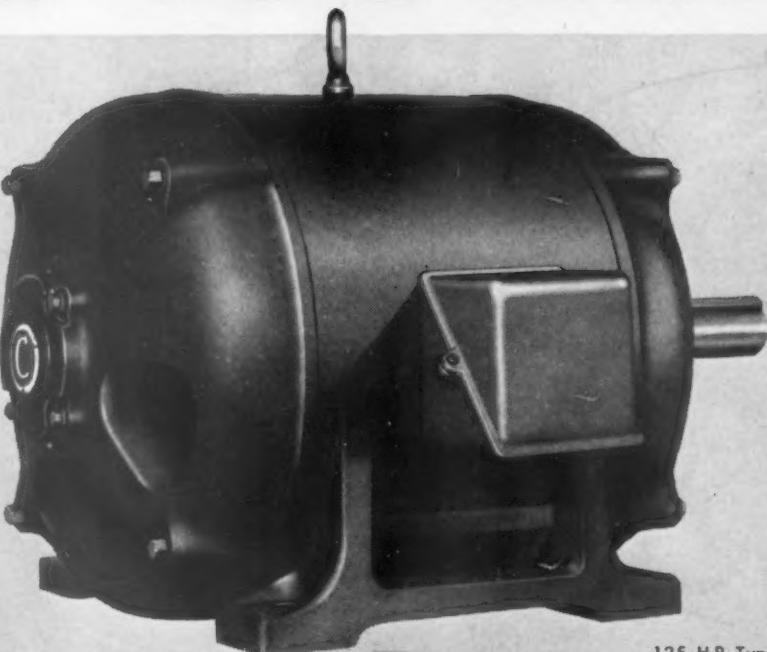
TEXACO Lubricants, Fuels and Lubrication Engineering Service

For More Information Circle No. 151 on Inquiry Card—Page 17

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small as 1/20 H.P.



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1/20 to 400 H.P.



CENTURY ELECTRIC COMPANY

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PURCHASING published monthly by C-M Business Publications Inc., subsidiary CONOVER-MAST PUBLICATIONS, INC., Publication Office Orange, Conn. Editorial and Executive Offices, 205 E. 42nd St., New York 17, N. Y. Entered as second class matter August 9, 1942, at the Post Office in Orange, Conn., under the act of March 3, 1879. Subscription rates, United States, U. S. Possessions and Canada, \$4 per year; elsewhere \$10 per year. Single copies \$1.00. October, 1958. Volume XLI, No. 4.

B. F. Goodrich distributors solved these costly problems—can they help you?



Rubber "mule" saves \$1500. The circular saws in this lumber mill used to be run by a gear mechanism. But the steel gears wore out too soon, took high overtime to repair and replace. A mule drive, using a B. F. Goodrich Highflex transmission belt, was suggested by a distributor. The change saved \$1500 maintenance costs in the first month alone.



Saves cost of freight elevator. Problem in this warehouse was moving refrigerators upstairs for storage, then down again for shipment. A \$19,000 freight elevator seemed to be the only answer until a distributor suggested a B. F. Goodrich Ribflex conveyor belt. While it cost much less, the "rubber elevator" works so well, it's giving everything the owners expected in the way of service.



Belt costs cut \$100 a month. Six ordinary V belts weren't strong enough to turn a ball mill loaded with 22 tons of steel balls, water and ore. The belts lasted only 5 or 6 weeks. But there wasn't space to expand, and redesigning the drive would cost \$800. Then B. F. Goodrich Grommet V belts were tried. They lasted not six weeks but six months, saved \$100 a month in belt costs, plus the cost of rebuilding the drive.

These savings were made because a B. F. Goodrich distributor studied the problem, then selected the type, size and grade of belt that was right for the job.

If you have "problem" installations in your plant, remember that B. F. Goodrich distributors are "specialists in rubber", ready to put their training and experience to work for you. By making a B. F. Goodrich distributor your *chief* supplier for rubber products, you not only get top quality products, but you also save buying time, have a dependable source of supply, and get fast delivery on most items from local stocks. *B. F. Goodrich Industrial Products Co., Dept. M-727, Akron 18, Ohio.*

Grommet—T. M. The B. F. Goodrich Co.

B.F.Goodrich

INDUSTRIAL PRODUCTS

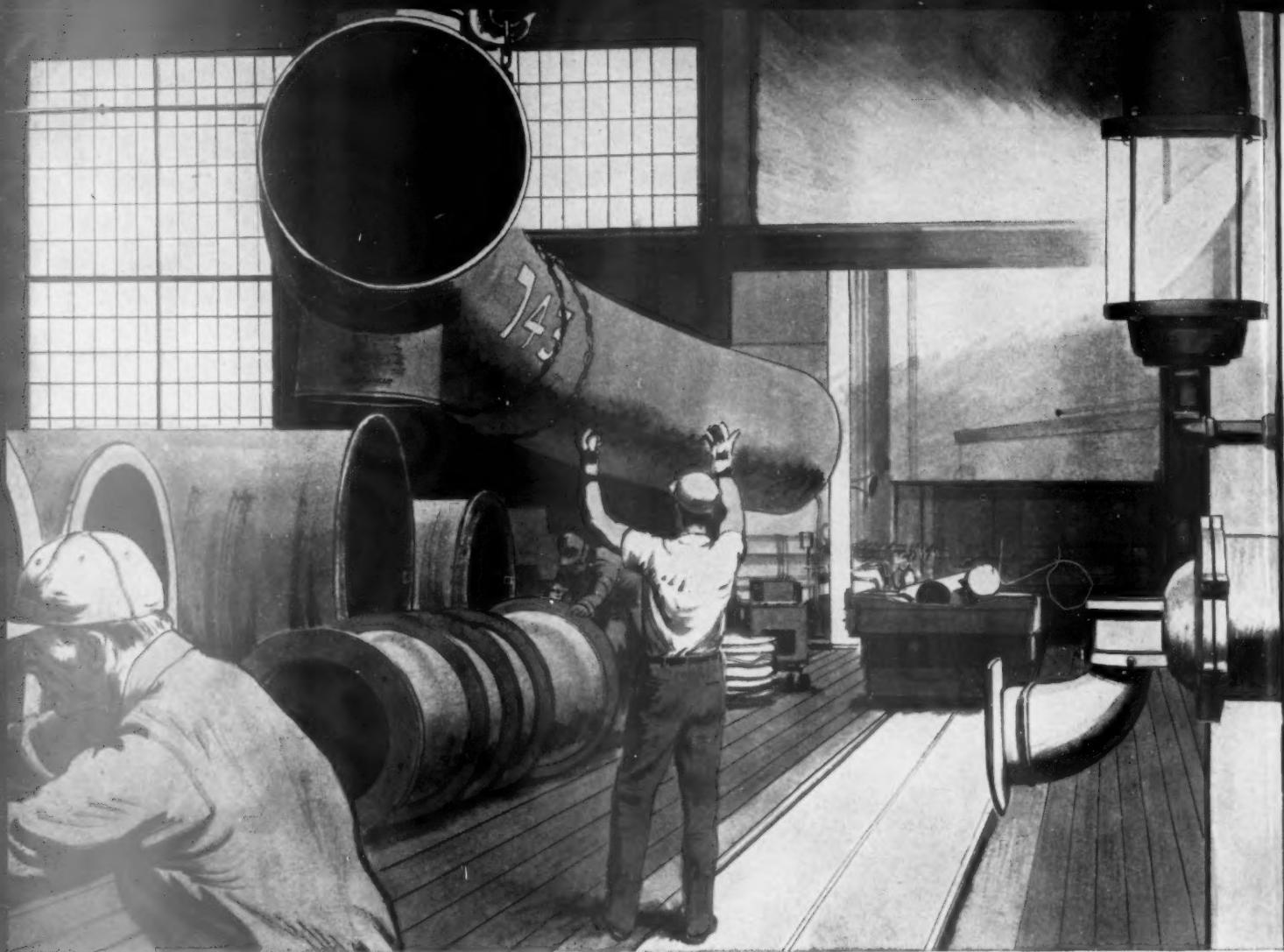


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Time was, and not too long ago, when industry used to spend almost as much time moving products as in making them. Then right before our eyes a whole new industry evolved, dedicated to the efficient, mechanized handling of materials. Today, the wizardry of materials handling people has not only sliced substantial cost items from industry's expense sheets, but has won the eternal gratitude of working men everywhere. Better steels have contributed to the developments in materials handling. And at Inland, we've been giving progress a push by providing the *right* steels to this important industry.

INLAND STEEL COMPANY 38 South Dearborn Street, Chicago 3, Illinois. Sales Offices: Chicago, Milwaukee, St. Paul, Davenport, St. Louis, Kansas City, Detroit, Indianapolis, New York. Steel products supplied to the materials handling industry include sheets and strip, Ti-Co galvanized sheets, bars, plates, structurals, 4-Way safety plate. Other products: tin mill products, reinforcing bars, rails and track accessories, coal chemicals.





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OCTOBER, 1956

PURCHASING

Published for and read by the men who buy for American Industry

VOL. 41, No. 4

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FREE INFORMATION SERVICE

To get further information on anything mentioned in this issue, use Reader Service Card opposite page 17



This Hallowell laboratory bench was custom built for a leading chemical manufacturer

This fine bench has a heavy-gage stainless steel top, fitted with chrome fixtures for vacuum, air and electricity. Flush-front drawers with stainless steel pulls glide smoothly on roller bearings. There is ample storage space with sliding doors and adjustable shelves in the enclosed cabinet base. Finish is baked-on charcoal gray enamel over a phosphate undercoat. You can have benches like this one in *your* laboratory or shop—designed and built to meet your specific requirements, and delivered promptly. Write us about your bench problem today. Hallowell Shop Equipment Division, STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

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HALLOWELL SHOP EQUIPMENT DIVISION

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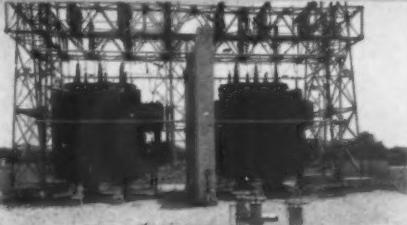
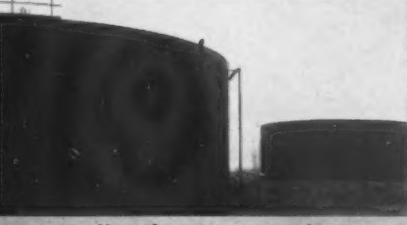
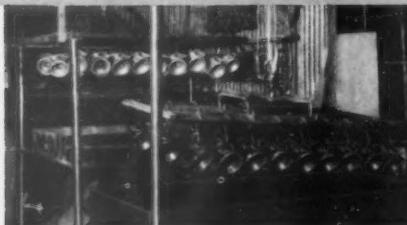
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How many of these SPECIAL FIRE HAZARDS does your plant contain?

Practically every manufacturer has what we call "special fire hazards" — extra hazardous areas in his plant where special protection must be provided to insure against possibly serious loss by fire. Some of these hazards are illustrated below, along with the special fire protection systems recommended to arrest fire without delay. And there are many other hazards, too, where major or minor supplements to ordinary-hazard fire protection systems

are a positive "must" — if trouble is to be safely avoided.

Grinnell, with 87 years experience protecting against fire hazards of every description, has a fire protection system for every need. Moreover, the installation of the proper Grinnell System usually serves to reduce fire insurance premiums drastically, often pays for itself in a few years. Check your own hazardous areas against the list that follows:

SPECIAL FIRE HAZARD	RECOMMENDED SYSTEM
	WATER SPRAY Grinnell ProtectoSpray; Grinnell Mulsifyre Systems
	
	FOAM Grinnell ProtectoFoam System
	
	CARBON DIOXIDE Grinnell CO ₂ System
	
	DRY CHEMICALS Grinnell Dry Chemical System
	

Call in a Grinnell Fire Protection Engineer. With a full range of equipment, you are assured of unbiased recommendations which will be fitted to your requirements. Grinnell Company, Inc., 273 West Exchange St., Providence, R. I.

GRINNELL
WHENEVER FIRE PROTECTION IS INVOLVED



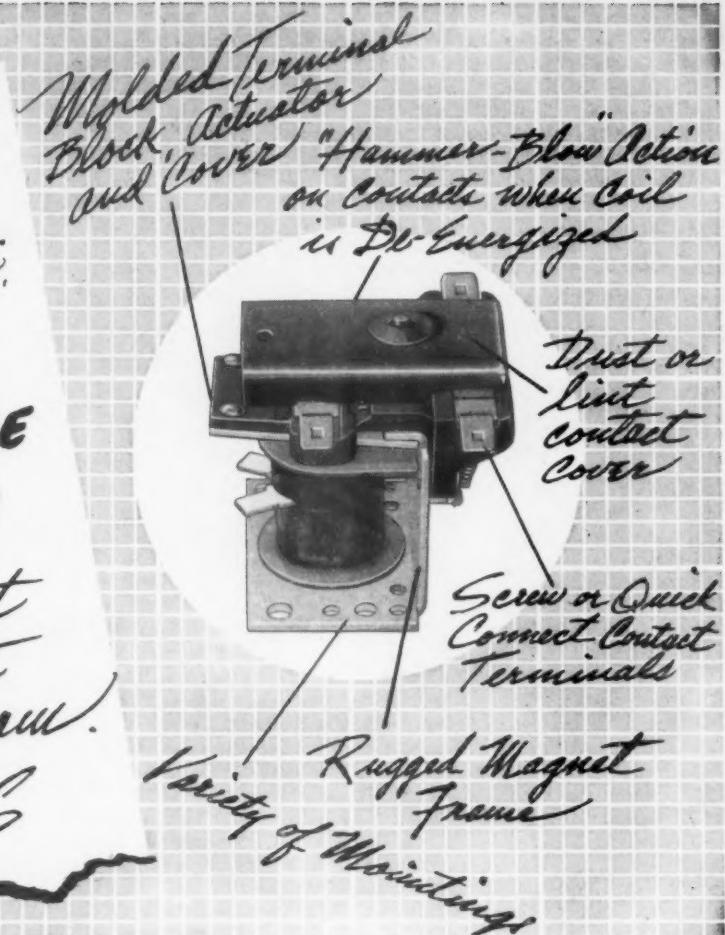
Manufacturing, Engineering, and Installation of Fire Protection Systems since 1870

For More Information Circle No. 159 on Inquiry Card—Page 17

MEMO
TO Engineering Dept.

SUBJECT
**POWER APPLIANCE
RELAY (TYPE 75)**

this should fit
in with our cost
reduction program.
Wm G



The Type 75 Power Appliance Relay is an ideal relay for appliance application where trouble-free operation and low cost are vital factors. Special ratings are available for inductive or motor loads.

Outstanding design features include a molded terminal block and actuator, a dust and lint hood over the contacts and a unique "hammer-action" effect on contact opening which increases the arc rupturing capacity.



Available either single pole normally open or two pole normally open, this power appliance relay will be furnished with screw or quick connect terminals.

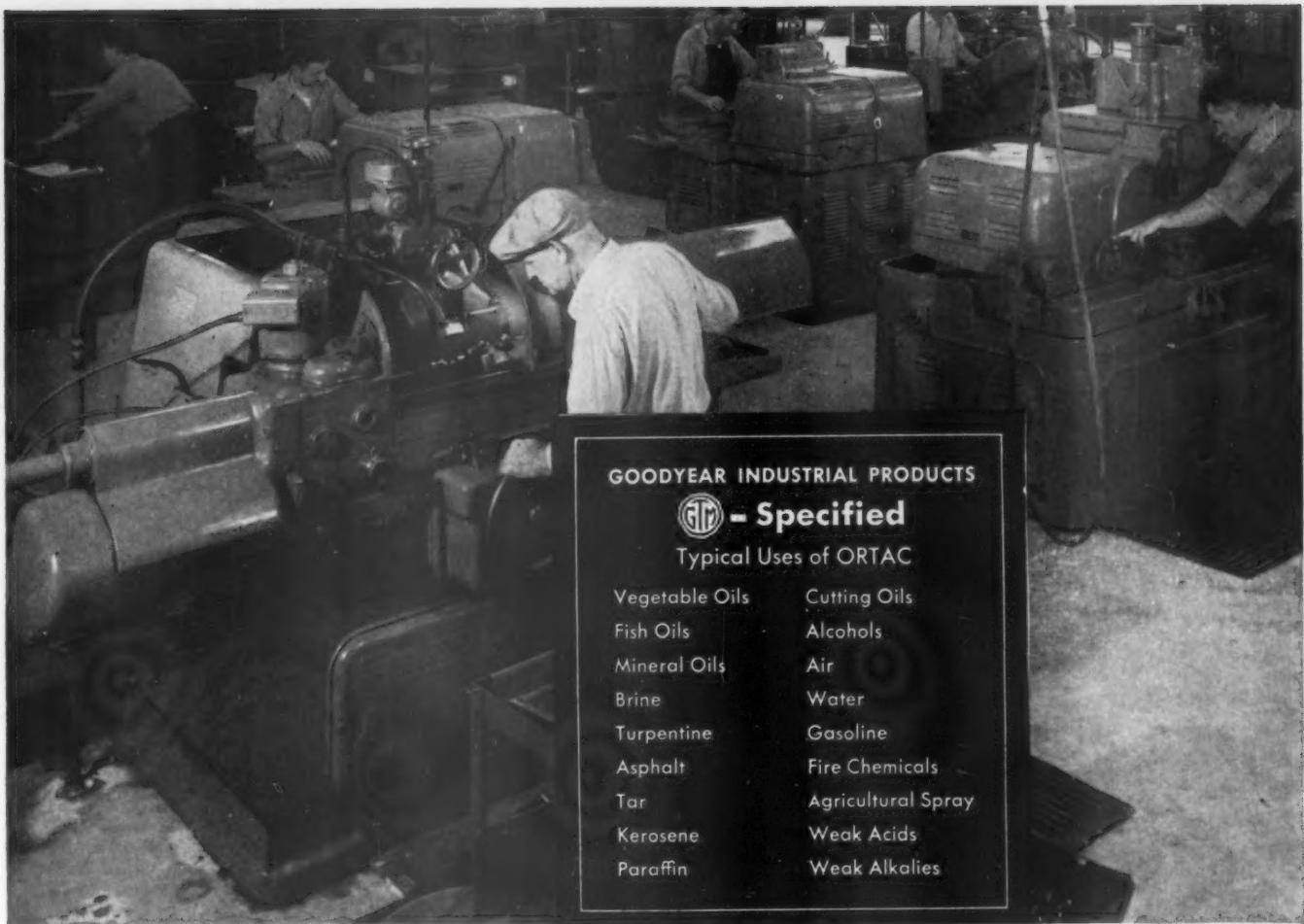
A low wattage coil can be incorporated into the relay if ambient temperatures are higher than normal. Coil terminals are of the quick connect type.

Send for Descriptive Bulletin



R B M DIVISION
ESSEX WIRE CORPORATION, Logansport, Indiana

For More Information Circle No. 160 on Inquiry Card—Page 17



GOODYEAR INDUSTRIAL PRODUCTS

 - Specified

Typical Uses of ORTAC

Vegetable Oils	Cutting Oils
Fish Oils	Alcohols
Mineral Oils	Air
Brine	Water
Turpentine	Gasoline
Asphalt	Fire Chemicals
Tar	Agricultural Spray
Kerosene	Weak Acids
Paraffin	Weak Alkalies

Held down three jobs for six years and not a single complaint!

A TOP-HEAVY hose inventory created stocking problems for this Midwestern power-tool manufacturer. His grinders alone required three different types—for oil, air and water—in a variety of sizes from $\frac{1}{4}$ - to 1-inch.

Then they called in the G.T.M.—Goodyear Technical Man. He recommended ORTAC—Oil Resistant Tube and Cover—to handle all three materials. Actually, ORTAC has five-hose-in-one abilities. For it does an equally good job of carrying most solvents as well as weak acids and alkalies.

RESULT: With ORTAC handling *all* the hose-work, hose inventories were cut to a fraction of previous

requirements. And each installation lasted far longer—thanks to the unique combination of oil-resistant rubber and high-tensile cord in ORTAC.

Where can ORTAC save for you? Your G.T.M. or Goodyear Distributor will be glad to look over your installation—and tell you about any of the over 800 types of hose in actual production. Call him in today. Or write to Goodyear, Industrial Products Division, Akron 16, Ohio.

YOUR GOODYEAR DISTRIBUTOR can quickly supply you with *Hose, Flat Belts, V-Belts, Packing or Rolls*. Look for him in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods."

Ortac—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

ORTAC by

GOOD**YEAR**
THE GREATEST NAME IN RUBBER

We think you'll like THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

For More Information Circle No. 161 on Inquiry Card—Page 17



Harvey Picker, President of Picker X-Ray Corp., says:

"Here's an inside story on Picker X-Ray!"

"You're looking into two important ingredients of Picker success — time and money.

"Time is essential when a hospital's X-ray equipment needs a replacement part. There are thousands of parts which no one could afford to stock-pile everywhere in the country.

"What happens? They call the nearest Picker office and the order is relayed to Cleveland, our manufacturing center.

Whatever's needed always gets there — and fast!

"How? By Air Express!

"But still, money is a consideration. With Air Express service — including delivery to the door — most of our shipments cost less than any other air service. 15 lbs., for instance, Cleveland to Milwaukee is \$3.23. It's the lowest-priced complete air-shipping service by \$4.02!"



Air Express

GETS THERE FIRST via U.S. Scheduled Airlines

CALL AIR EXPRESS . . . division of RAILWAY EXPRESS AGENCY

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which do you prefer?



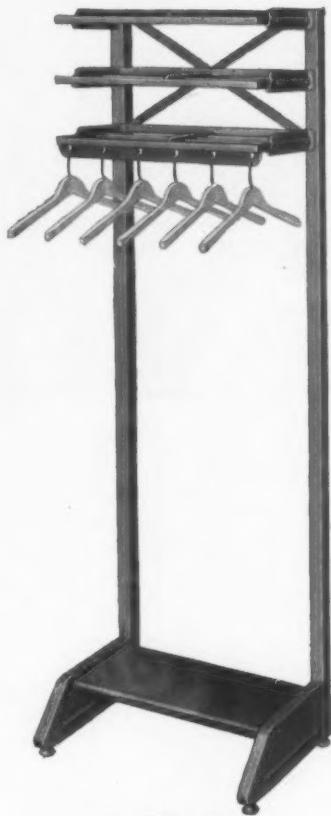
this?



or this?

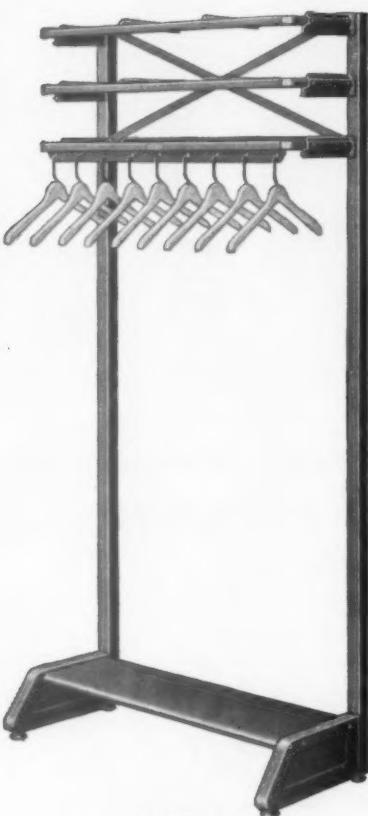
**of course you prefer a
BORROUGHS
wrap rack**

Look how bunched-up the coats are on the old-fashioned clothes tree...see how neat and trim they hang on the Borroughs Wrap Rack. So this fall, before you buy anything to hang coats on, be sure to take a good look at the Borroughs line...a quality line of wrap racks designed to meet both your eye and your purse. Coats hang straight.. hats rest on round rods and not on dusty shelves. Rigid steel construction welded for added strength. These features make Borroughs wrap racks lasting values.



WR-6

Holds 6 coats and 6 hats.



WR-9

Holds 9 coats and 9 hats.



WR-12

Holds 12 coats and 12 hats.

**send
for
catalog**

showing Borroughs' complete line of Wrap Racks,
Wrap Check Racks, and
other metal office furniture.

WR-9 and WR-12 are available in double-face and "add-on" units. Choice of 5 colors—
spring green, dark green, gray, fall tan, and brown, in electrostatic baked-on enamel.

BORROUGHS MANUFACTURING COMPANY

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AMP Plants and other Subsidiaries: (American Metal Products Co.—Detroit, Michigan—Union City, Tennessee) (AllianceWare, Inc.—Alliance, Ohio—Kilgore, Texas—Colton, California) (General Spring Products, Ltd.—Kitchener, Ontario, Canada) (Tube Reducing Corp.—Wallington, New Jersey)

Manufacturers of quality products for automobiles, trucks, aircraft, offices, factories, warehouses, and homes.

For More Information Circle No. 163 on Inquiry Card—Page 17



7 years' trouble-free service on HCl acid with this Crane diaphragm valve

How do Crane diaphragm valves perform on acid services?

This major container manufacturer has impressive proof. Seven years ago, the Crane 4-inch No. 1615-RN rubber-lined diaphragm valve shown above was installed on 17 deg. Baume hydrochloric acid service. The acid is used to clean evaporators and surface condensers. *Not once has this Crane diaphragm valve failed to function—not once has it failed to hold tight.*

Previously, this plant used conventional all-metal valves. These had to be replaced regularly as an expendable material. The

Crane valve has eliminated all replacement costs by providing maintenance-free performance—and from all appearances will continue to do so for years to come.

You just don't get service like this from ordinary valves. Crane valves are so expertly designed, have such quality materials and are so carefully machined and tested that cost-free records like this are the rule rather than the exception with Crane users.

Get the facts on Crane diaphragm valves from your local Crane Representative, or write to address below.



CRANE VALVES & FITTINGS

PIPE • KITCHENS • PLUMBING • HEATING

Since 1855—Crane Co., General Offices: Chicago 5, Ill. Branches and Wholesalers Serving All Areas

For More Information Circle No. 164 on Inquiry Card—Page 17



WASHINGTON REPORT

for purchasing agents

by A. N. Wecksler

October 1, 1956

INDUSTRIAL BOOM CONTINUES

Plant expansion and purchase of industrial equipment and machinery have continued to offset drop in autos and in residential housing.

Gross National Product has broken through the \$400 billion level—even though the lower auto output subtracted some \$2½ billion from the dollar value of total production during the first half of the year.

Manufacturing plant capacity is still being expanded at a record rate, and public utilities are matching this rate of expansion.

* * *

PERSONAL INCOME UP

Personal income has increased substantially this year as compared to last—biggest factor was increase in wage and salary levels.

With less of this personal income going into auto purchases and home buying, this additional money was channeled into larger spending for non-durable goods and services, into reduction of debt and into savings. Higher prices also took a large bite out of the increased personal income.

Farm products and farm prices continued to be the weak spot—along with autos—in the business pattern.

Trends show clearly that even though autos and residential construction were the underpinning of the 1954-'55 boom, the buildup in industrial plant this year has more than compensated for the drop in these areas.

* * *

DEFENSE INCREASE SLATED

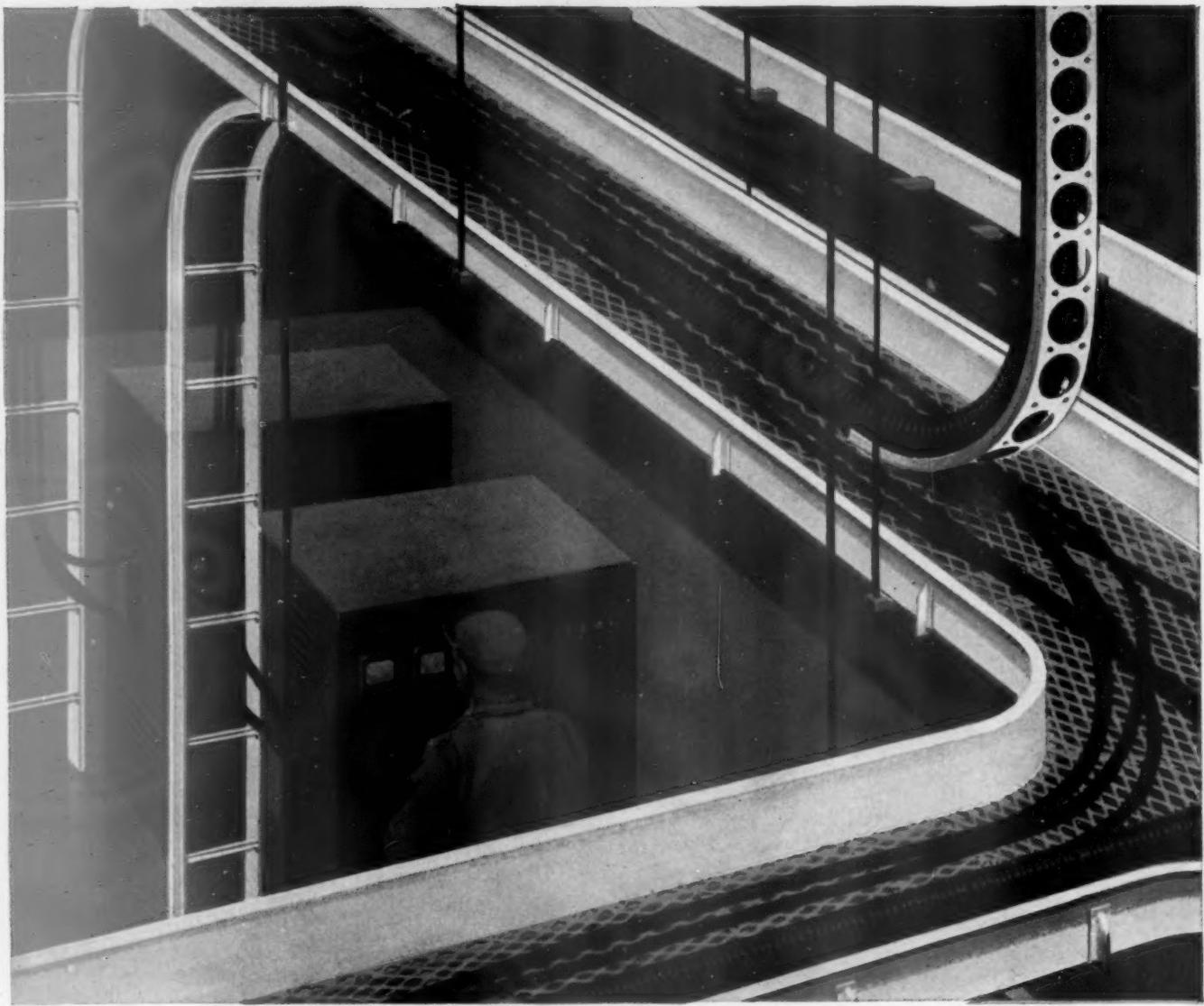
Military spending will also continue to be an important factor in driving the economy ahead. Defense spending is due for a sharp increase. For the immediate future, the military budgets are going up. If the three arms of the military received as much money as they felt they needed, the defense budget would go up to \$48 billion for the fiscal year '58. This contrasts to the current rate of \$36 billion.

While it is clear that the military will not get as much as their appetites call for, a substantial increase over the current rate is certain.

Military equipment is much more costly than before. Cost of the B-58—medium bomber replacement for the B-47—will be almost triple that of the B-47.

World War II destroyers cost \$10 million—cost in '53 was \$30 million and the 1960 cost of a nuclear-powered destroyer might be double that of the 1953 vessel.

"OVERHEAD" PROBLEMS SOLVED



with BRIDGEPORT Aluminum Extrusions!

New Cable Support Systems Use Aluminum Extrusions To Speed Erection . . . Reduce Installation Costs and Simplify Maintenance.

Cable racks and troughs . . . side rails or cross members—whatever components are needed for cable support systems, Bridgeport will extrude to meet your exact specifications.

Lightweight aluminum cable racks provide a convenient, practical means of installing interlocked armor cables—and are another example how Bridgeport aluminum extrusions can lead to a better product at lower cost.

If your product involves a special extrusion or a design problem—or if you require only standard shapes—think of Bridgeport. Our production facilities are modern and fully integrated...big enough to handle large volume orders, flexible enough to meet an emergency. Your Bridgeport representative has all the details on standard and tailor-made shapes available to meet your alloy and delivery requirements. A wide variety of standard shapes is available without die charges.

Write today for information on how your product can benefit from Bridgeport's aluminum know-how.



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BRIDGEPORT ALUMINUM

EXTRUSIONS, DIE AND HAND FORGINGS

Bridgeport Brass Company, Aluminum Division, Bridgeport 2, Connecticut • Offices in Principal Cities

For More Information Circle No. 165 on Inquiry Card—Page 17



Cable racks and components made by Husky Products, Inc., Cincinnati. Photo courtesy General Electric Company.

WASHINGTON REPORT

continued

What this means is that to replace the presently used, and what is now obsolescent, equipment would cost several times more than did the original equipment. This higher cost is due to the fact that the new equipment is more complicated—takes more engineering hours, more expensive materials, more manhours of manufacturing and of testing.

It is likely that the '58 defense budget will represent a compromise—possibly fewer units, but each costing much more money—and an overall increase in defense spending.

* * *

SMALL BUSINESS AIDS

As is usual around election time, the political parties give much attention to "small business." A President's Cabinet Committee on Small Business takes this time as opportune to release a report on its progress.

Much of the substance of what can be done to help smaller enterprise relates to Government procurement practices—and here are the suggestions that are made:

That Government purchasing policies and procedures be reviewed, with the purpose of simplifying Government buying—also of standardizing buying practices as much as possible.

That the President direct Government agencies to see that advance or progress payments to a bidder be made promptly, and that primes pass these payments where called for quickly to the subs.

That the Renegotiation Board encourage sub-contracting by giving it favorable consideration in determining allowable profits.

* * *

STATE PURCHASING VOLUME INCREASES

State and local governments are becoming increasing factors in spending and buying. Bureau of Census reports that in fiscal '55, spending by State and local governments increased by 10% to a total of \$40.4 billion.

Biggest part of this spending total went for education—with highways and streets accounting for the next largest portion. Public welfare took the next largest amount of the spending dollar.

* * *

CENSUS TABS INDUSTRIAL CHANGES

Census Bureau picture of what has been happening between 1947 and the most recent industrial census reflecting 1954 offers no surprises, but does give a clear statistical picture of what has been a clear-cut trend.

In summary, the movement of population and of business has been West—with the aviation industry, emerging as the big growth industry, pulling both dollar value added by manufacture and employment up with it.

Growth of the aviation industry makes the manufacture of transportation equipment the leaders in both dollar value added by manufacture and in employment.

With aviation located in great measure on the West Coast, the Pacific States show the largest industrial growth—and Los Angeles, which was fifth among the five leading industrial centers in 1947, moved up to third place in 1954.

In addition to the dramatic spurt in importance of the aviation industry, the Census figures show that there was a large percentage increase in employment in the scientific instrument industry—and also in the electronic tube industry.

These trends do not mean that the shifts in industry have sharply pulled down the industrial concentrations in New England and the North East Central industrial complexes—but the big growths have taken place in the Pacific States, the Mountain States and the West South Central States.

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He's introducing us now.



ALLMETAL has the largest stock of stainless fasteners in the world.



... that means we stock forty-three different basic fastening devices.



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Garden City, New York.

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Los Angeles 5, California
Call **DUNKirk 5-6357.**

... and our
New York City extension
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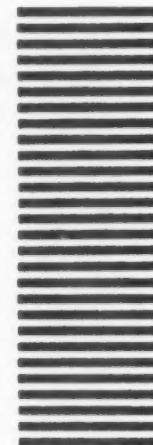
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catalog files

information for your

ALLOY STEELS

Technical information on 12 of the most widely used "4100 series" of alloy steels is presented in a 4-page folder, TDC-184. Included is condensed data on carburizing and thermal treatments.

The Babcock & Wilcox Co.

Circle No. 1 on Inquiry Card—Page 17

ALUMINUM ALLOYS

A 176-page handbook presents data on aluminum alloys and mill products in easy-to-read tabular form. Over 140 tables give complete information on any alloy in all fabricated thicknesses, sizes.

Aluminum Co. of America

Circle No. 2 on Inquiry Card—Page 17

ALUMINUM (STOCK)

An 8-page, 2-color bulletin covers formed aluminum held in stock to serve contiguous markets. Included is information on aluminum plates, sheets, coils, rods and bars and on services.

Joseph T. Ryerson & Son, Inc.

Circle No. 3 on Inquiry Card—Page 17

BARREL FINISHING EQUIPMENT

Recent advancements in barrel finishing techniques and methods are described and illustrated in a 52-page fully illustrated catalog. Specifications and photos of various machines are given.

Almco

Circle No. 4 on Inquiry Card—Page 17

BARREL FINISHING METHODS

An illustrated folder gives metal fabricators an over-all view of the problems inherent in metal barrel finishing. Subject is discussed from pre-cleaning to final rinse.

Oakite Products, Inc.

Circle No. 5 on Inquiry Card—Page 17

For More Information Circle No. 166
←on Inquiry Card—Page 17
OCTOBER, 1956

CABLE

Interlocked cables designed for power distribution systems as primary and secondary feeders are treated in booklet 19-555. Installed costs, material handling and space are discussed.

General Electric

Circle No. 6 on Inquiry Card—Page 17

CARBIDE TOOLS

A 16-page catalog shows a complete line of carbide tools along with technical data. Included are tungsten carbide twist drills, reamers and special tools.

Chicago-Latrobe

Circle No. 7 on Inquiry Card—Page 17

FANS

Bulletin A-109B deals with standard propeller, utility, cool-blast, low-noise, reversible and by-pass duct fans, intake units and unit heaters supplying full ratings.

Hartzell Propeller Fan Co.

Circle No. 8 on Inquiry Card—Page 17

GRINDING WHEELS

A 12-page illustrated brochure tells how electronic formulation, to control scientifically five variables in their composition, provides better engineered abrasive grinding wheels.

Bay State Abrasive Co.

Circle No. 9 on Inquiry Card—Page 17

HELMETS (WELDING)

Glass fibre welding helmets and equipment are described and illustrated in 2-color bulletin No. 0303-4. It also discusses a mask for face protection from chemicals.

Mine Safety Appliances Co.

Circle No. 10 on Inquiry Card—Page 17

catalog files

HEATERS (ELECTRIC)

Industrial electrical heating units and devices are covered in catalog No. 27-62. It contains design selection charts on strip heaters, oven heaters, melting pots, hot plates, etc.

Westinghouse Electric Corp.

Circle No. 11 on Inquiry Card—Page 17

MATERIALS HANDLING EQUIPMENT

Illustrated booklet No. 2653 (44 pp) covers a full line of equipment for moving and processing materials and for transmitting power mechanically: chains & sprockets, conveyors, etc.

Link Belt Co.

Circle No. 12 on Inquiry Card—Page 17

MOTOR

A fractional hp motor that features more power in a smaller unit is described in a 4-page brochure. Applications are given. Standard ratings and a dimension diagram are included.

Redmond Co., Inc.

Circle No. 13 on Inquiry Card—Page 17

OIL-HYDRAULIC SYSTEMS

Bulletin M5101A, a 20-page, 8½" x 11" 2-color well illustrated catalog describes oil-hydraulic systems and components for mobile equipment. Phantom drawings show 5 typical systems.

Vickers Inc.

Circle No. 14 on Inquiry Card—Page 17

PACKAGING, CARLOADING

A handy, 48-page booklet tells how to package and carload for maximum product protection at minimum cost. Strapping, seals, strapping tools, retaining strips, etc., are described.

Signode Steel Strapping Co.

Circle No. 15 on Inquiry Card—Page 17

PATTERNEDE METAL

A six-page booklet describes "Roll-Bond," a patterned metal used where high efficiency heat and cold transfer is needed. It shows how it is made and lists some of its uses.

Olin Mathieson Corp., Western Brass Mills Div.

Circle No. 16 on Inquiry Card—Page 17

PIPE FITTINGS

Bulletin A-3-56 contains complete dimensional, engineering and application data on forged screw-end and socket welding pipe fittings for high pressure service. Charts simplify data.

H. K. Porter Co., Inc., W. S. Fittings Div.

Circle No. 17 on Inquiry Card—Page 17

PLASTIC ROD, TUBE STOCK

Available sizes and prices of rods and tubes made from methyl methacrylate, Teflon, cast acrylic, vinyl, polyethylene, cellulose acetate and polystyrene are covered in a 24 pp. catalog.

Friedrich & Dimmock, Inc.

Circle No. 18 on Inquiry Card—Page 17

PULLEYS

Featured in bulletin No. 1630-B1 P are motor pulleys (1/8 through 3/4 hp) available with adjustable and tilting motor bases, companion sheaves, motor bases and V-belts.

Worthington Corp.

Circle No. 19 on Inquiry Card—Page 17

RIVET GUN

A versatile gun, designed to set all sizes of blind rivets made of aluminum, steel or monel, for use with electric or pneumatic drills is described in bulletin TL-117.

Townsend Co.

Circle No. 20 on Inquiry Card—Page 17

TESTING INSTRUMENTS

Measurement equipment catalog GEC-1016 lists over eighty testing instruments with applications. They range from simple thickness gages to mass spectrometer leak detectors.

General Electric Co.

Circle No. 21 on Inquiry Card—Page 17

THERMOCOUPLES

The 14-page bulletin, No. 5, includes information on a line of miniature protected thermocouples for use in highly corrosive gases and liquids. Small size suits pilot plants.

Thermo Electric Co., Inc.

Circle No. 22 on Inquiry Card—Page 17

TOOLING COMPOUNDS

A mailer, No. 9118, entitled "Why Plastic Tooling?", tells how epoxy resin tooling compounds cut production costs and simplify model changeovers. They provide inexpensive jigs, dies, etc.

Bakelite Co.

Circle No. 23 on Inquiry Card—Page 17

Circle Card Opposite Page 17

to Obtain These Catalogs

Additional Catalogs on Page 20

For More Information Circle No. 167
on Inquiry Card—Page 17→

PURCHASING

REVERE ALUMINUM

If your products call for aluminum tube, it will pay you to put your requirements up to Revere. For at this one source you can obtain virtually any aluminum tube you want . . . seamless drawn, welded, lockseam and others; in an extensive range of sizes, alloys and tempers; both round and other-than-round.

Revere has the men, machines and experience to produce tube that is right for its purpose as well as right on schedule. It will pay you to tie the progress of your business to the most dependable sources of supply. Call the nearest Revere Sales Office now. In all principal cities. Revere Copper and Brass Incorporated. Founded by Paul Revere in 1801. Executive Offices: 230 Park Avenue, New York 17, N. Y.

Revere Aluminum Mill Products include extruded shapes, rod and bar; coiled and flat sheet, embossed sheet, circles and blanks; seamless drawn and welded tube; rolled shapes; electrical conductors; forgings; and foil. Revere is headquarters for tube, and can supply it not only in aluminum but in copper, copper-base alloys and electric welded steel.

TUBE



catalog files

TORQUE CONVERTER GOVERNORS

Governors designed for torque converter applications are discussed in bulletin No. 400 (12 pp., illustrated). It shows how use of the flyball system dependably controls tailshaft speeds.

The Pierce Governor Co., Inc.

Circle No. 24 on Inquiry Card—Page 17

SHEAVES

Standard multi-v sheaves and made-to-order sheaves are dealt with in detail in an informative illustrated catalog, No. MVD-56. It gives practical information on their proper handling.

Maurey Mfg. Corp.

Circle No. 25 on Inquiry Card—Page 17

SOIL TESTING

A 128-page catalog contains descriptions and illustrations of over 1350 items of apparatus for engineering tests of soils, concrete, asphalt, and construction materials.

Soiltest Inc.

Circle No. 26 on Inquiry Card—Page 17

SOCKETS (METER)

How to select round and square die-cast sockets for single-phase and network meters, box-type for standard polyphase, and high capacity single- and polyphase meters is shown in cat. GEA-5878B.

General Electric Co.

Circle No. 27 on Inquiry Card—Page 17

SWAGING MACHINES

Catalog No. 5M56, profusely illustrated, details outstanding features of a line of swaging machines and specifies capacities (5/32" to 3 7/8" for solid stock; 7/16" to 6" for tubing).

Fenn Mfg. Co.

Circle No. 28 on Inquiry Card—Page 17

TRANSFORMER

Bulletin GEA 5754C devotes its sixteen pages to the features of a voltage stabilizing transformer and supplying data on where to use it. It includes operating characteristics.

General Electric

Circle No. 29 on Inquiry Card—Page 17

TRANSFORMER LAMINATIONS

Detailed information, with drawings, on 100 standard laminations is contained in a 120-page book. Discussed are direction of grain, count and weight of laminations, die layout, etc.

Allegheny Ludlum Steel Corp.

Circle No. 30 on Inquiry Card—Page 17

TRANSFORMERS

Catalog No. A56 deals with adjustable variable transformers in auto, isolated and metered models for bench and panel mounting. All single and ganged units are described with diagrams.

Standard Electrical Products Co.

Circle No. 31 on Inquiry Card—Page 17

TUBE EXPANDER

Detailed information about tube expanders and associated tools used for tube rolling is compiled in a well illustrated catalog. Also included is data on tube expansion methods.

Thomas C. Wilson, Inc.

Circle No. 32 on Inquiry Card—Page 17

VALVES (HYDRAULIC)

Factual information on oil hydraulic valves for controlling fluid power in cylinders and motors fills 92 pages of an illustrated catalog. Performance data and capacities are given.

Commercial Shearing & Stamping Co.

Circle No. 33 on Inquiry Card—Page 17

WASHERS

Catalog No. 40 lists washers of all types in U.S. and S.A.E. Standards. Included in the 75 categories are light steel, and rivet washers, machinery bushings, expansion plugs, etc.

Wrought Washer Mfg. Co.

Circle No. 34 on Inquiry Card—Page 17

WELDING PRODUCTS

Standard and special spot welding electrodes, electrode wheels, dies, back up bars, shafts and bushings are described and specified in a 56-page catalog replete with photos and diagrams.

Weldaloy Products Co.

Circle No. 35 on Inquiry Card—Page 17

WELDING PROCEDURES

Covering 120 welding rods, electrodes and welding compounds, a 140-page pocket data book, TIS 2575, features simplified welding procedures for every base metal, including 60 welding alloys.

Eutectic Welding Alloys Corp.

Circle No. 36 on Inquiry Card—Page 17

(Please turn to page 400)

Circle Inquiry Card Opposite Page 17

to Obtain These Catalogs

HY-PRO—the tap specialists— also specializes in SERVICE!



1. 24-hour delivery—Hy-Pro offers you 24-hour service on all standard taps. And Hy-Pro has a complete, up-to-date stock of standard taps.



2. National coverage—No matter where your company may be located, you'll find a Hy-Pro supplier located in your vicinity to give you faster service.



3. IBM equipment—The most modern IBM tabulating machines guarantee you prompt handling of your order—and insure the most accurate billing records.



4. Route specialists—Hy-Pro specialists who know the quickest, safest routes to you and to your distributors are in charge of the routing of your tap orders.

DON'T settle for just any tap when you can have the best, and have it on time.

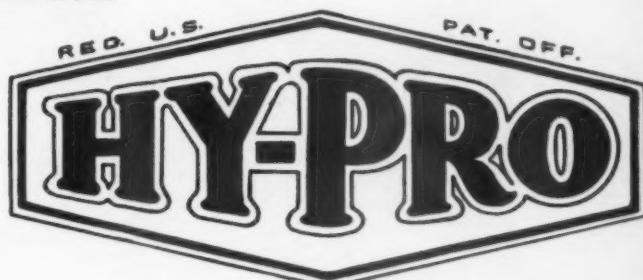
Hy-Pro specializes in tap production, and in service, too, giving you the quickest, most complete service possible. One of the reasons that Hy-Pro is among the leaders of the tap industry is this insistence on speed as well as efficiency.

If you have the need for the right taps *at the right time*, pick up a phone or write a note to Hy-Pro. You'll never find better taps or better service.

Remember, Hy-Pro protects the quality of the taps you buy with its exclusive 3-Way Quality Control.

1. Heat-Treating—insures tap toughness with the tap industry's newest equipment.
2. Electronic Analyzer—checks hardness uniformity.
3. Micro-Hardness Tester—analyzes metallurgical structure.

This quality insurance is available at Hy-Pro at no extra cost to you.



"The Tap Specialists"
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DETROIT 21, MICH CHICAGO, ILL
UNIVERSITY 4-1077 GARDEN 4-0217

108 EDISON PL.
NEWARK 5, N. J.
MARKET 2-4316

For More Information Circle No. 168 on Inquiry Card—Page 17

suppliers

in the news

George Leland has been appointed southwest district manager of the aviation products division of Fenway Inc., Ashland, Mass. He will be responsible for all sales engineering activities in New Mexico, Texas, Oklahoma and Kansas.

Montague-Harris and Co., Los Angeles, is now a stocking distributor for the line of milling machines of Axelson Mfg. Co., division of U. S. Industries, Inc., Los Angeles. Keen Machinery Co., Cincinnati also has been named a distributor, covering southern Ohio and eastern Kentucky.

The Wheelco Instruments Division, Barber-Colman Co., Rockford, Ill., has appointed H. H. Kieckhefer sales manager.



H. H. Kieckhefer

Bernard F. Brehl, Jr., has been named manager—industrial laminate sales for the **Laminated and Insulating Products Department, General Electric Co., Pittsfield, Mass.**

Clark Controller Co., Cleveland, has appointed King D. Christopher general manager of its new Los Angeles division.

The appointment of Walter Poremba as assistant sales manager has been announced by **Alloy Precision Castings Co., Cleveland.**

William F. Styer has been named Milwaukee district sales manager by **DeWalt Inc., Lancaster, Pa.** The territory includes part of Wisconsin and Illinois, except metropolitan Chicago.



W. F. Styer

McBeth Machinery Co., Cincinnati, has been appointed a distributor for the line of heavy duty engine lathes of **Axelson Mfg. Co., division of U. S. Industries, Inc., Los Angeles.** McBeth will cover southern Ohio, eastern Kentucky, eastern Pennsylvania, southern New Jersey, Delaware and Maryland.

Lewis-Shepard Products, Inc., Watertown, Mass., has named Merle Thayer its exclusive sales and service representative in the Omaha, Neb., area.

Walter S. Maranuk has been named manager of the Pittsburgh sales and service branch of **The Yale & Towne Mfg. Co., Philadelphia.**



W. S. Maranuk

ARE RINGS YOUR PROBLEM?



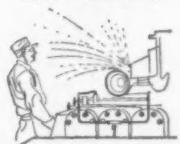
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HELP YOURSELF



WELDING



FABRICATING



MACHINING



Send us your blueprints
and we will show you how
we can fit into your picture.

**to a quarter of a million square feet
equipped to solve your problem**

American Welding has a quarter of a million square feet of floor space that houses the equipment necessary to manufacture production runs of welded rings (made from rectangular bars or special mill shapes) or circular weldments — from 6" to 96" in diameter, of ferrous or non-ferrous metal.

And that's not all — 900 specialists in ring manufacture are backed with the best in engineering and research — with heat treating, x-ray and test equipment required to meet aircraft specifications.

Let Amweld become your production welded ring department.

THE AMERICAN WELDING & MANUFACTURING CO.
460 DIETZ ROAD • WARREN, OHIO

AMERICAN WELDING

For More Information Circle No. 169 on Inquiry Card—Page 17



Suppliers

James L. Hamilton, Jr., has been made western sales manager by Mead-Morrison Division, Mc-Kiernan-Terry Corp., Harrison, N. J.

Kenneth E. O'Shaughnessy has been named factory sales representative in the New England and central New York sales areas by The Torrington Mfg. Co., Torrington, Conn. He represents the company's Air Impeller Division.



R. A. Egelhoff

Roy A. Egelhoff has been named district manager of the Dallas sales office of the Bridgeport Brass Co., Bridgeport, Conn.

The appointment of Max F. Moyer as manager, service sales and equipment division, has been announced by Goodyear Tire and Rubber Co., Akron.

Additional "Suppliers in the News" will be found following the Industrial Development section

Evans H. Hanson has been named assistant sales manager of Paasche Airbrush Co., division of Cline Electric Mfg. Co., Chicago.

The appointment of Harvey C. Dow as a manufacturer's representative has been announced by Schlegel Mfg. Co., Inc., Rochester.

A. J. Hendry has been made sales manager of the standard control division of Westinghouse Electric Corp., Pittsburgh.

Standard Pressed Steel Co., Jenkintown, Pa., has named Robert A. Reese sales manager of the



R. A. Reese

E. D. Otto

Syracuse, N. Y., district, and Edward D. Otto a salesman in the same district.

Joseph C. Farrell is now a sales engineer for the Henry G. Thompson & Son Co., New Haven, Conn.

Metalwash Machinery Corp., Elizabeth, N. J., has appointed Ralph C. Schwarz & Sons, Rochester, as its representatives in the western area of New York.

Armstrong Machine Works, Three Rivers, Mich., has appointed R. J. Denton Co. as its representative in Syracuse and the surrounding countries.

Paul V. Brown has been named manager of the Industrial Rolls Division, Sam'l Bingham's Son Mfg. Co., Chicago.

Vulcan-Crucible Steel Division, Aliquippa, Pa., of H. K. Porter Co., Inc., has named Sabre Steel Service, Inc., its exclusive distributor in the greater Buffalo, N. Y., area.

Cutler-Hammer, Inc., Milwaukee, has appointed B. R. Stratton manager of its Atlanta district sales office.

The Chicago Screw Co., division of Standard Screw Co., Bellwood, Ill., has named P. W. Sheppard & Associates to handle the sales of its line of threaded fasteners in Colorado and Utah.

Raymond E. Schwartz, Jr., and Frank J. Hughes, Jr., are now sales representatives for Stanley Electric Tools, division of The Stanley Works, New Britain, Conn.

The A. O. Smith Corp., Milwaukee, has appointed J. D. Wilson Co., Inc., as the first regional agent for its recently developed glasscoated steel smokestack. The Wilson Co. will cover eastern Wisconsin, upper Michigan and northern Illinois.



W. C. Scheib

William C. Scheib is now divisional manager of pressure-sensitive tape sales for Behr-Manning Co., Troy, N. Y., a division of Norton Co.

John F. Bates is now manager of sales, eastern region, for Stanley Hardware, division of The Stanley Works, New Britain, Conn.

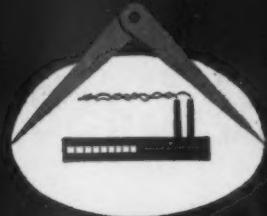
Charles B. Martin has been appointed an abrasive engineer by Norton Co., Worcester, Mass. He will cover West Virginia.

For More Information Circle No. 170
on Inquiry Card—Page 17 →
PURCHASING

using

DU PONT ELASTOMERS

NEOPRENE • HYPALON®



in Industry

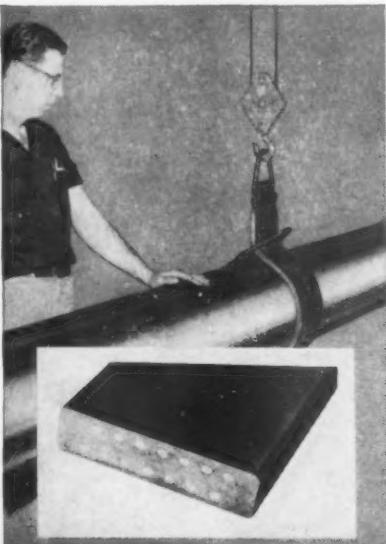
NEOPRENE sling handles highly finished metal stock

Long service life is expected from the neoprene-cushioned sling shown below handling a piece of finished bar-stock. The conventional woven wire sling has been completely encased in neoprene, providing a soft, smooth cradle that won't mar the highly polished surface.

The manufacturer used neoprene for the sling because of its superior resistance to oils, greases and aging. Even under the most severe service conditions, neoprene offers long, dependable performance.

In your plant, neoprene offers cost savings wherever you need a durable, resilient material. Hose, belts, gaskets, tank linings and many other applications profit by neoprene's unusual resistance to heat, oil, chemicals, aging and flex cracking.

Use the coupon for more complete information on neoprene. If you have a specific problem, let us know on the coupon.



Neoprene wire slings can be supplied in any length or width, used in a basket or choke hitch for handling a variety of metal shapes. Sling pictured is 4" wide and 5' long.

New rubber-based paints resist ozone, chemicals, heat and weather



There's a new kind of industrial maintenance paint on the market. These paints are based on HYPALON, Du Pont's new synthetic rubber. They resist ozone, strongly oxidizing chemicals, heat and weather. And, what's more important for color-conscious plant engineers and purchasing agents, HYPALON paints come in a range of colors, all of which are stable to sunlight exposure.

HYPALON coatings can be brushed or sprayed. A sprayed coating, applied with standard lacquer or enamel spray equipment, gives a glossy finish and can be built up in the same way as other coatings.

Whichever method you use, you can get colors that start bright and stay bright—applied inside or outside of your plant. They can be used to color-code piping systems or to color-condition your equipment. In all cases, your equipment is protected by a resilient, long-lasting coat-

ing. The end result is reduced plant maintenance costs.

We'll be glad to send you a list of suppliers. Write "Suppliers list" on the coupon. Clip the coupon, also, for information on the many other uses for HYPALON.



EASY TO APPLY, HYPALON coatings are brushed or sprayed on like enamel. They add bright, light-resistant color and long-lasting protection to your plant equipment.



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

HYPALON is a registered trademark of

E.I. du Pont de Nemours & Co. (Inc.)

I am particularly interested in _____

Please add my name to the mailing list for your free publications, "The Neoprene Notebook" and "Facts about HYPALON."

E.I. du Pont de Nemours & Co. (Inc.)

Elastomers Division, Dept. PC-10

Wilmington 98, Delaware

Name _____

Firm _____

Address _____

City _____

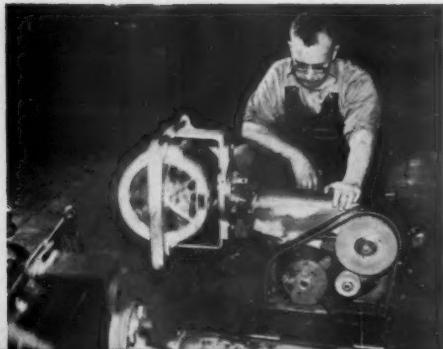


State _____

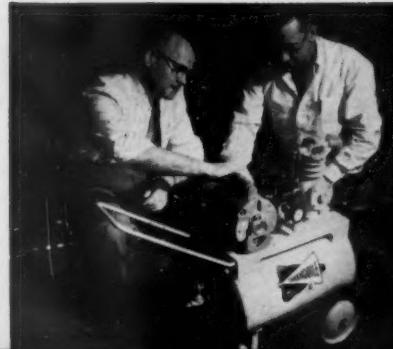
20 Case Histories of G-E Motor Benefits



AMERICAN COOLAIR CORP.
"customers like 'no-reoiling' feature"



RED DEVIL TOOLS
"stands up under severe vibration"



CAMPBELL-HAUSFELD CO.
"makes product easier to sell"



BUCKEYE INCUBATOR CO.
"customers say 'they're dependable'"



TRUFLOW FAN COMPANY
"never had a motor failure"



UTILITY APPLIANCE CORP.
"virtually trouble-free service"



BERKELEY PUMP CO.
"lighter weight, modern appearance"



GENERAL WIRE SPRING CO.
"more than adequate power reserve"



W. M. CISSELL MFG. CO.
"easier to handle and install"



PENBERTHY INJECTOR CO.
"allows maximum design flexibility"



A. P. RUTH & CO., INC.
"speeds assembly, saves on shipping"



PERMITIT COMPANY
"saved \$8 per unit"

—HOW MANY APPLY TO YOU?



METALMASTER CORP.
"wide customer acceptance"



MASTER-BILT REFRIG. MFG. CO.
"standardized 100% with G. E."



AMERICAN DUPLEX CO.
"unexcelled durability"



GOLD MEDAL PRODUCTS CO.
"saved 18% in shipping costs"



C. M. SORENSEN CO., INC.
"reduced weight 15%"



ALVEY CONVEYOR MFG. CO.
"all-angle mounting sold us"



MOUNTAIN STATES EQUIP.
"cut weight nearly 10 lbs."



TAIT MANUFACTURING CO.
"neater, more compact"



"YEARS-AHEAD" MOTOR

THESE G-E FHP MOTOR FEATURES ENABLE YOU TO IMPROVE YOUR PRODUCT, YET CUT COSTS

The twenty case histories at left are typical of the profit-building experiences of thousands of manufacturers using General Electric motors. The reason is simple—only G.E. gives you *all* of these outstanding features, combined into a complete line of smaller, lighter motors.

1. SMALLER, LIGHTER DESIGN—The trend to modern appearance and portability is reflected in this General Electric motor. It's 40% smaller, 50% lighter than old-style designs.

2. MYLAR® POLYESTER FILM INSULATION—It has over 35 times more moisture resistance, 8 times more dielectric strength than ordinary paper insulation.

3. ALL-ANGLE OPERATION—General Electric's all-angle lubrication system gives you positive lubrication regardless of mounting position. As a result, you can often avoid the higher cost of "special" motors.

4. EASY CONNECTION—A speed nut welded inside the motor shell permits fast, easy connection of conduit fitting.

5. MOUNTING VERSATILITY—This G-E motor, whether resilient or solid-base, can be rotated inside its cradle to obtain complete mounting versatility. The cradle may also be removed entirely to meet your design needs.

6. DOUBLE LUBRICATION LIFE—The General Electric combination of a larger oil capacity (50% more than old style designs), and an efficient oil retention system means minimum motor maintenance for you.

Thousands of manufacturers have already used millions of these "Years-ahead" G-E motors. Why not evaluate your own motor savings in terms of these G-E motor benefits?

For more information, contact your nearby G-E Apparatus Sales Office, or write Section 702-29, General Electric Co., Schenectady, New York.

* DuPont registered trademark.

†Feature of G-E summer cooling fan motors.

GENERAL ELECTRIC

ULBRICH
Stainless Steels

THIN GAUGE

The BIGGEST Little Converting Mill in the Country

EDGE ROLLING

Specialists in small orders—a foot or a pound and up

SLITTING

STRIP·Flat Wire converted to your exact requirements

Complete Inventory—
Delivery from Stock

ULBRICH
Stainless Steels
Established 1924
WALLINGFORD · CONN.
Wallingford Colony 9-7771

For More Information Circle No. 172
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For More Information Circle No. 171
on Inquiry Card—Page 17

f.o.b.

filosofy of buying

THE CITY P. A. at Woburn, Mass., was the target of an unusual pressure group when a resolution was introduced at the City Council meeting directing him to purchase the city's light bulb requirements from the Woburn Lions Club. The proposal was made in the interest of a worthy cause, for the club periodically holds city-wide bulb sales to dramatize its Sight Conservation program, and incidentally to raise funds for this work. The Woburn club this year donated \$600 to the State Eye Research program.

in Lexington, Ky., it was the toss of a coin that picked the supplier of \$3,697 worth of traffic signal equipment from two identical bids. In the latter instance, it was the second consecutive year that this particular item was so decided, and the same company called the toss both times. Maybe it was a right decision and there is some occult justice that guides the coin. Or maybe some vendors are just plain lucky.

• • •

A N UNUSUAL sales set-up is that of Henry Clark, typewriter salesman for Sperry-Rand Company, who has a desk in the purchasing office of John Hancock Mutual Life Insurance Company, Boston, one of his bigger accounts. Grant Dwyer, P.A. at Hancock, explains it this way:

"Henry, who is 77, has been calling on John Hancock since 1908, the year the present P.A. was born. He calls here daily, and when for some reason he can't call, he telephones and explains why. When he arrives in the office around 11 a.m., there are usually several calls waiting for him. We think he rates a desk because of his unique contribution to our purchasing activities. He sold the company its first typewriters, conducted the first typing class, and has seen our usage of typewriters in the Home Office grow from a single machine to more than 1,900. No other salesman is

allowed the privilege of calling throughout the building or has a desk here. However, we have never been criticized or accused of favoritism. Other salesmen seem to appreciate the fact that we show that we recognize the value of a salesman who has contributed so much in the way of service."

• • •

BIG BUSINESS depends on little business to keep the wheels turning. A current report on the purchasing activities of Chrysler Corporation shows that the company buys from 12,000 different suppliers in 44 states and three foreign countries. Of these, 71% employ fewer than 100 workers, and another 18% employ fewer than 500. Only 6% of those on the supplier list are themselves in the big business category, with 1000 or more employees.

• • •

YOU may be among the buyers receiving a unique and effective promotional presentation in which PURCHASING has more than a casual interest. Conceived by Allmetal Screw Products Company, the kit consists of a plastic hand-wind phonograph and a record. One side of the record is a condensation of the article "Getting the Right Vendor" from our May 1956 issue, which has received wide and favorable acclaim from our readers on both sides of the purchasing desk. The other side is devoted to the sales pitch for Allmetal, following the principles set forth in that article.

• • •

MORRIS PICKUS, President of the Personnel Institute and widely known sales training consultant, is quoted as saying, "Purchasing agents don't automatically respect the salesman. It's up to the salesman to gain this respect. The salesman and his company must orient to the customer, study his needs, satisfy his wants. Particularly vital is unselfish customer service . . . more than mere lip service."

+ We make the wire cloth we would use for your product... the well-known "NEWARK for ACCURACY" Cloth.

+ We offer more than 75 years experience in wire cloth manufacture and use.

+ We have the facilities for accurately fabricating parts from NEWARK Cloth in small lots or in production quantities to meet your production schedules.

+ We have the skilled workers to do the job.

+ We have experienced engineers ready to work with you in the design of the part to make the most effective and economical use of the wire cloth.

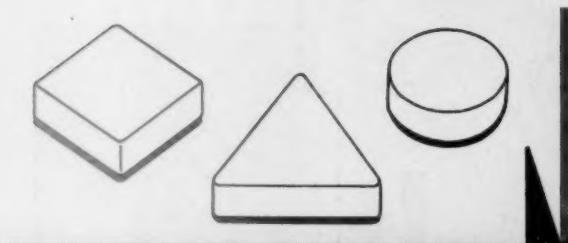
= It all adds up to a service that can produce "quality" wire cloth inserts for you. It is the same service that has brought us many, many repeat orders and one that has been responsible for a steadily growing list of customers.

**NEWARK
for ACCURACY**
We can furnish wire cloth woven from all commercially used metals. Sizes range from 4 inches (space cloth) to 400 mesh.



**Newark
Wire Cloth
COMPANY**

351 VERONA AVENUE • NEWARK 4, NEW JERSEY
For More Information Circle No. 173 on Inquiry Card—Page 17



CARMET

CA-610

THROW-AWAY TOOL BLANKS

improved this
cutting operation

150%



Write for the NEW
CARMET CATALOG



... Completely revised, the 16th Edition of the Carmet Catalog contains the latest information on all Carmet grades, and on Carmet blanks, tools, die sections, etc.; also gives details on special pre-forming and how to order special parts.

Address Dept. P-82

A leading West Coast manufacturer now uses Carmet CA-610 tool blanks for machining components of jet engines and gas turbines. Since switching to this special steel-cutting carbide grade, production has sharply increased from 28 parts per blank to more than 80.

Carmet throw-away blanks are designed for any type of tool holder. This same manufacturer reports that the ease and speed with which used blanks may be exchanged for new ones has reduced downtime for tool change-over by 7%.

Advantages such as these are important in your industry, too. Call your Carmet dealer TODAY for his advice on any production problems you may have . . . or write Allegheny Ludlum Steel Corporation, Carmet Division, Detroit 20, Mich.

For ALL your CARBIDE needs, call

Allegheny Ludlum

Branch Offices or Distributors in Principal Cities

www.allegheny-ludlum.com



89.22%

"SEMS"

SAY... SPEED ASSEMBLY... SAVE MAN-HOURS!"

Results of a nation-wide survey among leading metal-working companies indicate 89.22% of firms using SEMS consider assembly efficiency the most important reason for using this product. SEMS eliminate a time-wasting hand operation by delivering screw and washer to the production line pre-assembled. They are ready for fast driving and stronger fastening in one operation. Follow the trend to SEMS for lower production costs.



For maximum locking power, make sure you order specially designed SHAKEPREOF® Lock Washers when you specify SEMS.



37 Sources

READY TO SERVE YOU NOW!

CLEVELAND CAP SCREW CO.

Cleveland 4, Ohio

CONNECTICUT SCREW & RIVET CO., INC.

Watervile 20, Connecticut

CONTINENTAL SCREW CO.

New Bedford, Mass.

ECONOMY SCREW CORP.

Chicago 14, Illinois

ELCO TOOL & SCREW CORPORATION

Rockford, Illinois

FEDERAL SCREW WORKS

Detroit 10, Michigan

GREAT LAKES SCREW CORPORATION

Chicago 27, Illinois

H. M. HARPER CO.

Morton Grove, Illinois

HARVEY HUBBEL, INC.

Bridgeport 2, Connecticut

INDIANA METAL PRODUCTS DIVISION, TEXTRON AMERICAN, INC.

Rochester, Indiana

LAKE ERIE SCREW CORP.

Cleveland 7, Ohio

THE LAMSON & SESSIONS CO.

Cleveland 2, Ohio

MIDLAND SCREW CORP.

Chicago 32, Illinois

NATIONAL LOCK COMPANY

Rockford, Illinois

THE NATIONAL SCREW & MFG. CO.

Cleveland 4, Ohio

OLIVER IRON & STEEL CORP.

Los Angeles 22, California

PARKER-KALON DIVISION, GENERAL AMERICAN TRANSPORTATION CORP.

Pittsburgh 3, Penn.

PHEOLL MANUFACTURING CO.

Clifton N. J.

RELIANCE DIVISION, EATON MANUFACTURING CO.

Chicago 50, Illinois

REPUBLIC STEEL CORP.

London, Ontario

RING SCREW WORKS

Bolt & Nut Division, Cleveland 13, Ohio

P. L. ROBERTSON MFG. CO., LTD.

Van Dyke, Michigan

ROCKFORD SCREW PRODUCTS CO.

Milton, Ont., Canada

RUSSELL, BURDSALL & WARD BOLT & NUT CO.

Rockford, Illinois

Port Chester, N. Y.

SEMS

Los Angeles 33, California

Rock Falls, Illinois

SCOVILL MANUFACTURING CO.

Waterville Division, Waterville 48, Conn.

SEMS DIVISION, TEXTRON AMERICAN, INC.

Rockford, Illinois

SHAKEPREOF DIVISION, ILLINOIS TOOL WORKS

Elgin, Illinois

SOUTHBINGHAM HARDWARE MFG. CO.

Southington, Conn.

STEEL CO. OF CANADA, LTD.

Hamilton, Ont., Canada

THOMPSON-BREMER & CO.

Chicago 22, Illinois

TRIPLEX SCREW CO.

Cleveland 9, Ohio

WALES-BEECH CORP.

Rockford, Illinois

AMERICAN SCREW COMPANY

Willimantic, Connecticut

THE BLAKE & JOHNSON CO.

Waterville 14, Connecticut

BUTCHER & HART MFG. CO.

Altoona, Penn.

CANADA ILLINOIS TOOLS LTD.

Toronto, Ont., Canada

CENTRAL SCREW COMPANY

Chicago 9, Illinois

Keene, New Hampshire

SEMS is a development of Illinois Tool Works, Chicago



Let this "Visiting Fireman" train your men to fight fire... it could save your business

You have a potential fire-fighting team right in your plant. These would-be fire fighters could save your business if fire struck unexpectedly. All they need is training, the kind that will enable them to respond instantly and properly to any kind of fire emergency.

Ansul can provide this training for a group of your men just as it has for hundreds of its customers. And there will be no charge. It is just one of the "essential" services that Ansul provides for its customers.

Twenty years experience in the fire protection industry has proved to Ansul many times over that all the fire equipment in the world will not save your business unless trained hands are available to man that equipment. So, it is important to Ansul that you get

training along with the fire equipment you buy. Only then will you experience the security that goes with having a complete fire protection program. Only then will you get what you really pay for, what you really need—*complete fire protection*.

You owe it to the life of your business to learn more about Ansul's in-plant fire training service. Get in touch with your local ANSUL MAN through the yellow pages of your phone directory, he will be happy to call on you and explain all of Ansul's customer services in detail. Or write to THE ANSUL CHEMICAL COMPANY, Dept. P-10, Marinette, Wisconsin.



For More Information Circle No. 176 on Inquiry Card—Page 17
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For More Information Circle No. 177 on Inquiry Card—Page 17→
PURCHASING



Now Baker gives you Balanced Design in an all new 2000 lb. gas fork truck

This newest addition to Baker's outstanding line of gas-powered fork trucks now completes the range of models from 2000 to 7000 lbs. Like its companions it features Baker *Balanced Design*, with all elements co-ordinated to work together for top efficiency, maximum dependability and longest life.

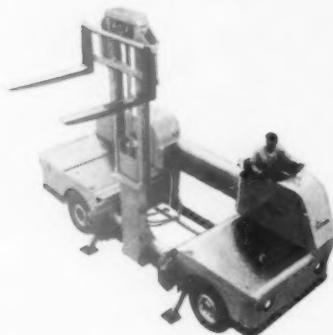
For greatest operator convenience and safety it features absence of cowl and offset driver position for better visibility...recessed seat for lower driver silhouette...unobstructed access for mounting from either side...effortless automotive steer...self-adjusting, self-energizing and self-equalizing hydraulic brakes.

Actual turning radius of this sturdy, compact truck is only 6½ inches...it operates in 57-inch intersecting aisles. Total lift 130 inches...lifting speed 45 FPM, lowering 65 FPM...travel speed 8 MPH forward, 7 MPH reverse—all with full load. Mast tilts 10° forward or back.

SEE OTHER SIDE

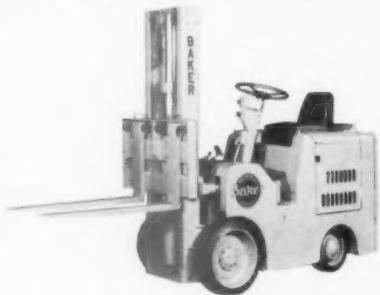
BAKER GAS TRUCKS

a complete line for every handling need



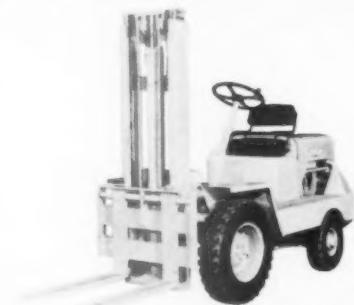
Baker TRAVELoader

Side-loading fork truck for efficient handling of long, bulky, heavy loads. Picks up, transports and tiers loads up to 60 ft. long. Stacks up to 12 ft. high from 10 ft. aisles. Higher lifts available. Delivers at speeds up to 30 MPH. Pneumatic tires, gas or diesel operated. 10,000 and 12,000 lb. capacities.



Baker GAS-O-MATIC

Revolutionary gas-powered fork truck with built-in generator and electric drive. Eliminates clutch and gear shift. Smoother acceleration, better inching, low initial cost. Uses 50% less fuel, requires 40% less maintenance and has 50% longer life than ordinary gas trucks. Capacities 3,000, 4,000, 5,000 and 6,000 pounds.



Baker YARDloader

Low-priced gas fork truck has heavy-duty industrial engine, 4-speed transmission, top forward speed of 14 MPH, hydraulic lift to 122 inches, large pneumatic tires, exceptionally high ground clearance and many other features for top performance. 4000 pound capacity. Get all the facts and save up to \$1,000 on your next gas fork truck.



Baker "FG"-high performance-low maintenance straight gas fork trucks for regular duty

To assure maximum dependable, efficient performance, lowest maintenance and longest life, the Baker "FG" line of gas fork trucks incorporates the following: Heavy-duty industrial truck engine power-rated truck capacity and geared to operate at optimum RPM. Compact, rigid power train with no troublesome universal joints. Split clutch housing for speedier maintenance. Single oil supply for entire assembly. Large full-floating, self-energizing, self-equalizing hydraulic brakes with single-point adjustment. Mast design allowing higher standard lift than ordinary trucks. Finger-tip automotive type steer with wide-angle steering axle for greater maneuverability.

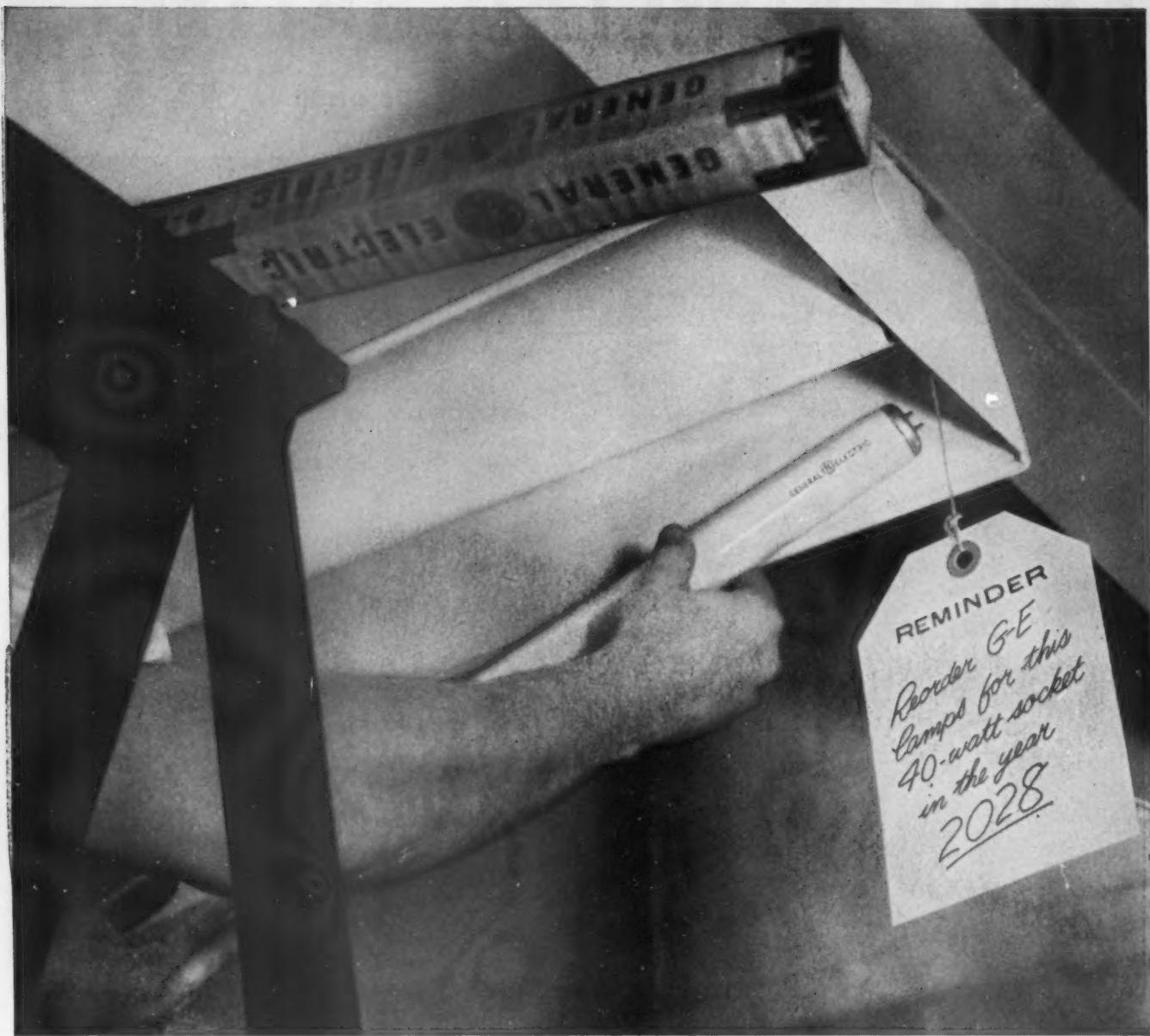
Baker "FG" gas fork trucks, available in capacities of 2,000, 3,000, 4,000, 5,000, 6,000 and 7,000 pounds, are protected by a full 6 months' warranty. Write for specific bulletins.

THE BAKER-RAULANG COMPANY

1216 WEST 80TH STREET • CLEVELAND 2, OHIO

A Subsidiary of Otis Elevator Company

G-E LAMPS GIVE YOU MORE FOR ALL YOUR LIGHTING DOLLARS



General Electric fluorescent lamps "should live so long"...and they do!

IT would be most unusual for you to buy a whole carton of 24 G-E 40-watt fluorescent lamps to keep a single socket supplied. If you should, however, based on the average service life of 3 years per lamp, you wouldn't need to buy another lamp for that socket for 72 years . . . until the year 2028!

HOW G-E LAMP UNIFORMITY AFFECTS LIFE—Long life is important, but also important is *uniformity of life*—the "spread" between the first and last burnouts in a group of lamps. After one year of service in single shift plants an average of 99 out of 100 General Electric 40-watt fluorescents will still be burning. That's 2500 hours of service. In double shift plants, 98 of 100 will be burning after a full year! General Electric 40-watt fluorescent lamps not only live up to their published rating of 7500 hours life, but have virtually no early failures.

GENERAL ELECTRIC LAMPS SAVE YOU MONEY. Lack of early failures can help cut your lighting costs. For example, G-E lamp uniformity lets you set up and stick to a group relamp-

ing schedule, cutting maintenance costs. Fewer individual lamps to spot replace.

In addition to uniform *life*, General Electric 40-watt fluorescent lamps on the average are 99.9% free from physical defects that could affect performance in service! And they are uniform in light output; less than 1% of all G-E 40-watt fluorescent lamps are as much as 5% below their published light output of 2500 lumens.

For more information on how you benefit from G-E fluorescent lamps write: General Electric Co., Large Lamp Dept., P-10, Nela Park, Cleveland 12, Ohio.

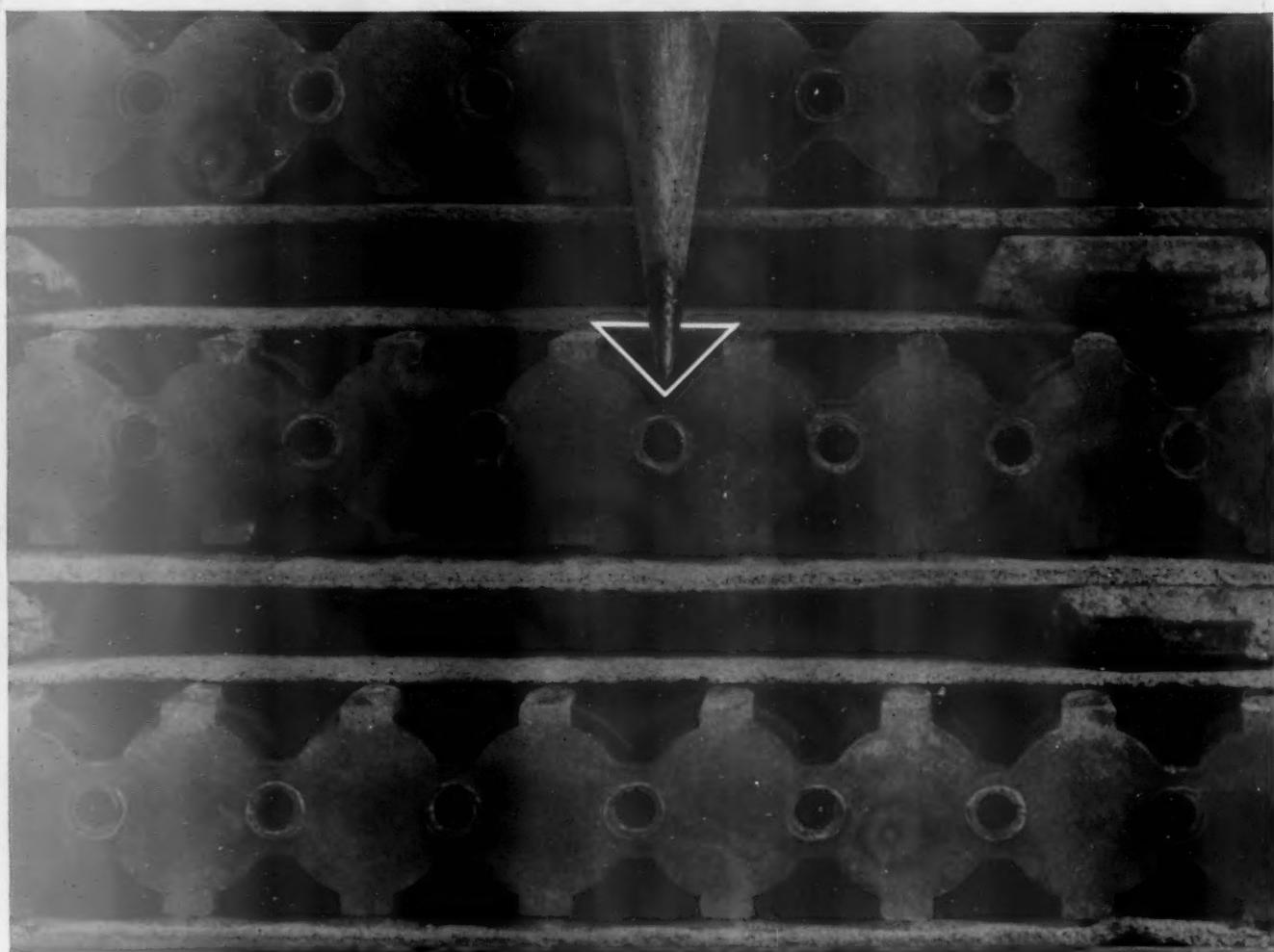
Progress Is Our Most Important Product

GENERAL  **ELECTRIC**

For More Information Circle No. 178 on Inquiry Card—Page 17

EXIDE-IRONCLAD BATTERIES

For electric industrial truck operation



BOTTOM VIEW shows tubular construction of positive plates in an Exide-Ironclad Battery.

Pools of electrolyte next to plates speed heavy load response

BATTERY FOR ELECTRIC INDUSTRIAL TRUCK. Exide-Ironclad Model TH. Write for Bulletin No. 5161.



When the man at the control says "More power—fast," the positive plate in the storage battery says "More electrolyte—instantly." That's why the Exide-Ironclad Battery can meet heavy load demands so much more rapidly than other types of batteries. And it's the reason they outperform others in so many uses.

Adjacent to every positive plate in the Exide-Ironclad Battery are these triangular pools of electrolyte standing in reserve. When the call comes for power, the electrolyte is right there where it's needed for swift, sure response. There's nothing to slow down the action. Tiny slits in plastic power tubes let electrolyte in—yet prevent loss of active material.

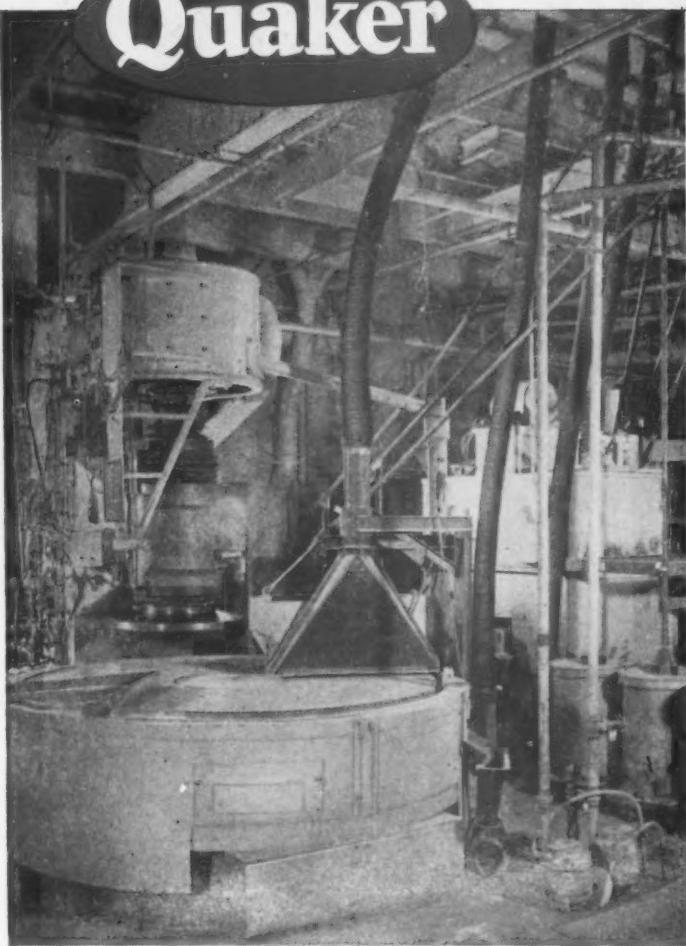
Only the Exide-Ironclad Battery has this construction.

This exclusive feature is only one of the many reasons Exide-Ironclad Batteries have proved so superior in countless applications. When you order batteries for heavy duty service, or the equipment that requires such batteries, be sure to specify Exide-Ironclad. Write for detailed bulletin. Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 2, Pa.

Exide®

For More Information Circle No. 179 on Inquiry Card—Page 17

Quaker



Quaker Exhaust hose at Simonds Abrasive Company, Philadelphia, Pa.



**This exhaust hose
already 4 times longer lasting in
this grinding wheel plant...**

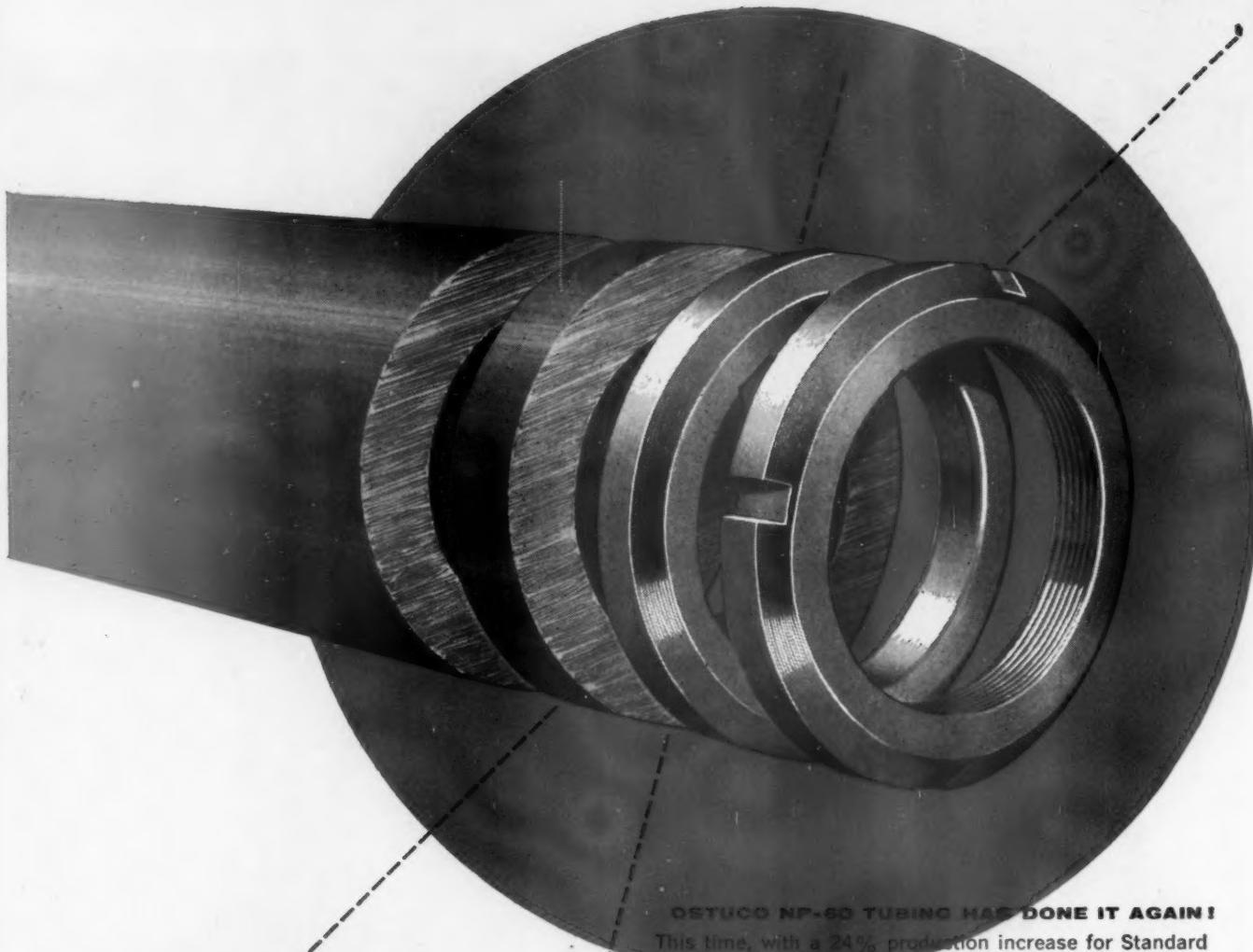
Your Quaker-Quaker Pioneer distributor can supply not only your standard needs—but also your highly specialized ones. You'll find him a prompt dependable money-saving source for everything you need in rubber products. Write for free brochure and name of your nearest distributor.

Continuous handling of abrasive dust and steel shot calls for an exhaust hose of proven stamina. This Quaker hose has it. Even after 6 months of steady use by this grinding wheel manufacturer, it is still standing up to the wearing effects of abrasive particles—as compared to 6 weeks service by previously-used hose. It is specifically made for such tough service. Tube is specially compounded abrasive-resistant stock. Extra strength is provided by two plies of sturdy fabric and a helix of flat steel wire. Cover resists aging and is corrugated to give ready flexibility for bending around sharp corners. In lengths up to 50 feet. For lasting service specify Quaker-Quaker Pioneer exhaust hose.



H. K. PORTER COMPANY, INC.
QUAKER RUBBER DIVISION
Philadelphia 24, Pa.
QUAKER PIONEER RUBBER DIVISION
Pittsburg, Calif.

For More Information Circle No. 180 on Inquiry Card—Page 17



24% Production increase at
Standard Locknut and Lockwasher, Inc.
after switching to OSTUCO
NP-60 tubing

OSTUCO NP-60 TUBING HAS DONE IT AGAIN!

This time, with a 24% production increase for Standard Locknut and Lockwasher, Inc., Indianapolis, Indiana. Tubing experts from OSTUCO recently recommended a switch to NP-60 Tubing specially processed for machineability for Standard's locknut and lockwasher line used in ball and roller bearing applications.

Standard components find their way into electric motors, machine tools, automotive, aircraft, farm and construction equipment. Other companies, with equally diverse applications, report similar success with NP-60.

If you are machining bearings, washers, collars, or any circular part, you'll do well to check into the merits of OSTUCO's new NP-60 seamless steel tubing.

GET NP-60 WITH "SINGLE-SOURCE SERVICE."

New NP-60 seamless tubing comes to you with OSTUCO'S unique "Single-Source Service"—experience and facilities for design and development, production and delivery all under one roof. Get together with a tubing expert for preliminary planning on NP-60's possibilities in your product. Contact your nearest sales office or write direct to the factory.

OSTUCO
SHELBY, OHIO

OSTUCO TUBING

SEAMLESS AND ELECTRIC RESISTANCE
WELDED STEEL TUBING—Fabricating and Forging

"Be Sure To Visit Our Booth #311 at the A.S.M. Metal Show in Cleveland"

For More Information Circle No. 181 on Inquiry Card—Page 17

OHIO SEAMLESS TUBE DIVISION
of Copperweld Steel Company • **SHELBY, OHIO**
Birthplace of the Seamless Steel Tube Industry in America

SALES OFFICES: BIRMINGHAM • CHARLOTTE • CHICAGO (Oak Park)
CLEVELAND • DAYTON • DENVER • DETROIT (Ferndale)
HOUSTON • LOS ANGELES (Beverly Hills) • MOLINE
NEW YORK • NORTH KANSAS CITY • PHILADELPHIA
PITTSBURGH • RICHMOND • ROCHESTER • ST. LOUIS
ST. PAUL • SALT LAKE CITY • SEATTLE • TULSA • WICHITA

CANADA, RAILWAY & POWER ENGR. CORP., LTD.

EXPORT: COPPERWELD STEEL INTERNATIONAL COMPANY
225 Broadway, New York 7, New York



are you making
WAXING
times as hard...

3



...as it needs to be?

Have you studied your floor maintenance operations and costs lately? Are you satisfied you are getting the best results per hour of labor and dollar of expense? Remember 95c of every floor maintenance dollar is spent for labor. We suggest you call in your nearby Hillyard "Maintainer"® for a consultation. He will carefully study your floors, floor traffic and special problems, and will recommend in each case: (1) modern streamlined work methods and short cuts; (2) up-to-date labor-saving, dollar-saving tools and equipment; (3) specialized floor treatment products tailored to the particular type of floor and floor use that will cut your labor costs.

CASE HISTORY - WAXING

FILE II

Tough, resilient Super Hil-Brite lasts 3 TIMES AS LONG as ordinary floor waxes. Eliminates expensive stripping and refinishing. Cuts labor costs up to 50%. Retains deep, rich lustre even after repeated cleaning — is easier to maintain in top condition.

The Hillyard Maintainer has had years of training and experience in every conceivable type of floor problem. He will gladly put this experience at your disposal, help train your staff. There's no charge, no obligation. He's "On Your Staff, Not Your Payroll."



ST. JOSEPH, MISSOURI
SAN JOSE, CALIF.
PASSAIC, N. J.

SEE IF THE MAINTAINER CAN HELP YOU!

HILLYARD St. Joseph, Mo.

Yes, I'll take you up! Without charge or obligation, have the Hillyard Maintainer® show me how to take advantage of new streamlined floor treatment procedures.

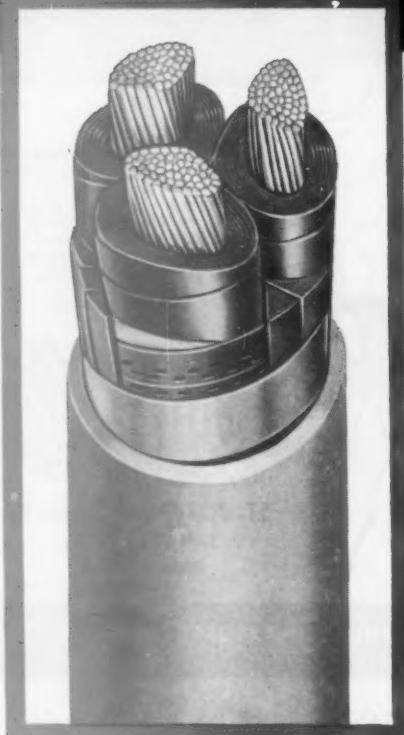
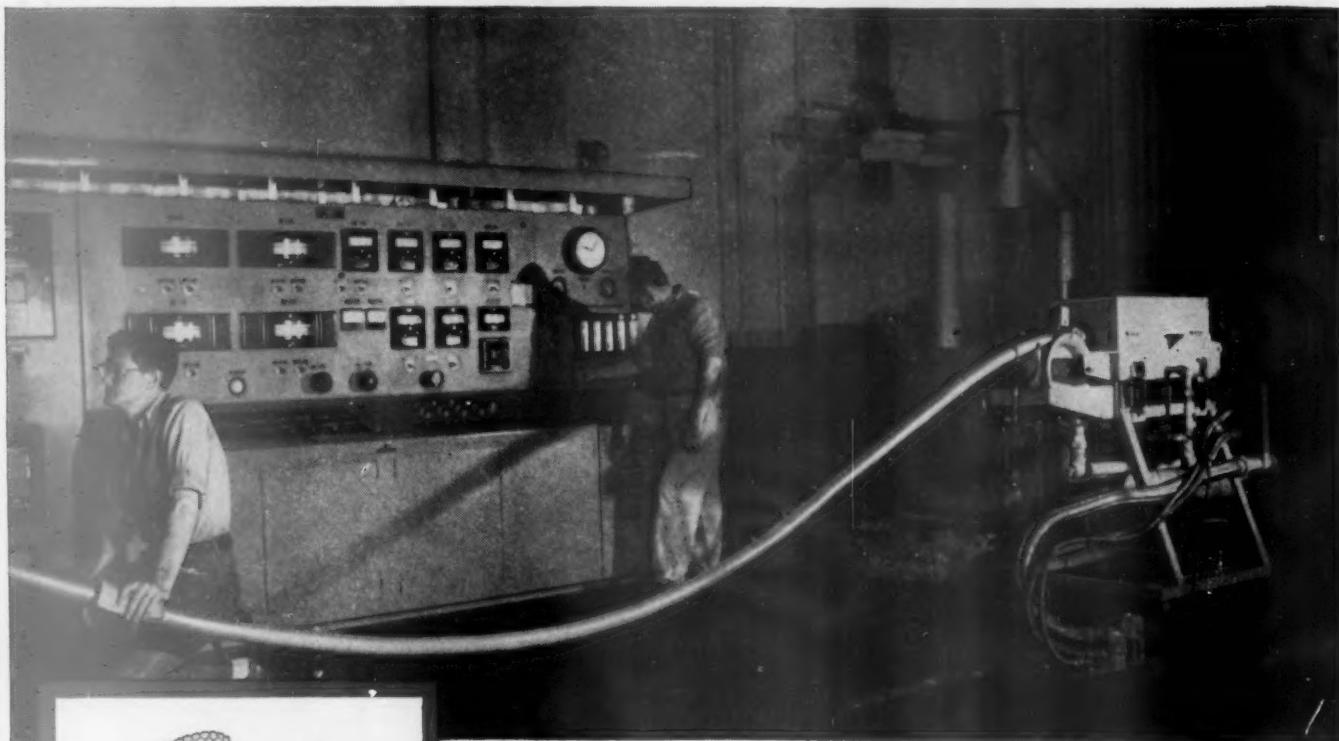
Name _____

Institution _____

Address _____

City _____ State _____

ROEBLING INVESTS IN YOUR FUTURE



New continuous lead extrusion press vastly improves "paper and lead" cable sheathing

THIS NEW CONTINUOUS LEAD EXTRUSION PRESS and control board revolutionize the extrusion of sheathing for Paper Insulated Cable. Because its operation is continuous there are no press stops, no recharging and, of outstanding importance to you, *there are no charge welds*. In addition, the control board, shown at the left, automatically controls and records all temperatures. Every inch of the resultant cable is just like every other inch...the "paper and lead" cable sheath is perfect in its concentricity, physical properties and general uniformity.

This press is the finest obtainable today. It is only part of Roebling's program of modernization for producing electrical conductors of modern, high quality.

Our engineering and metallurgical staffs are always glad to consult with you on your individual cable problems. A letter or phone call will bring action.

ROEBLING ELECTRICAL WIRES AND CABLES ARE AVAILABLE
WITH EITHER COPPER OR ALUMINUM CONDUCTORS

ROEBLING

Subsidiary of The Colorado Fuel and Iron Corporation

JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 11-15 STILLING ST. • CHICAGO, 5525 W. RODEVELT RD. • CINCINNATI, 2340 GLENDALE-MILFORD RD., EVENDALE • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 918 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • DODDESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • PITTSBURGH, 1723 HENRY W. OLIVER BLDG. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, 19 RECTOR ST., NEW YORK 6, N.Y.



So sensitive...

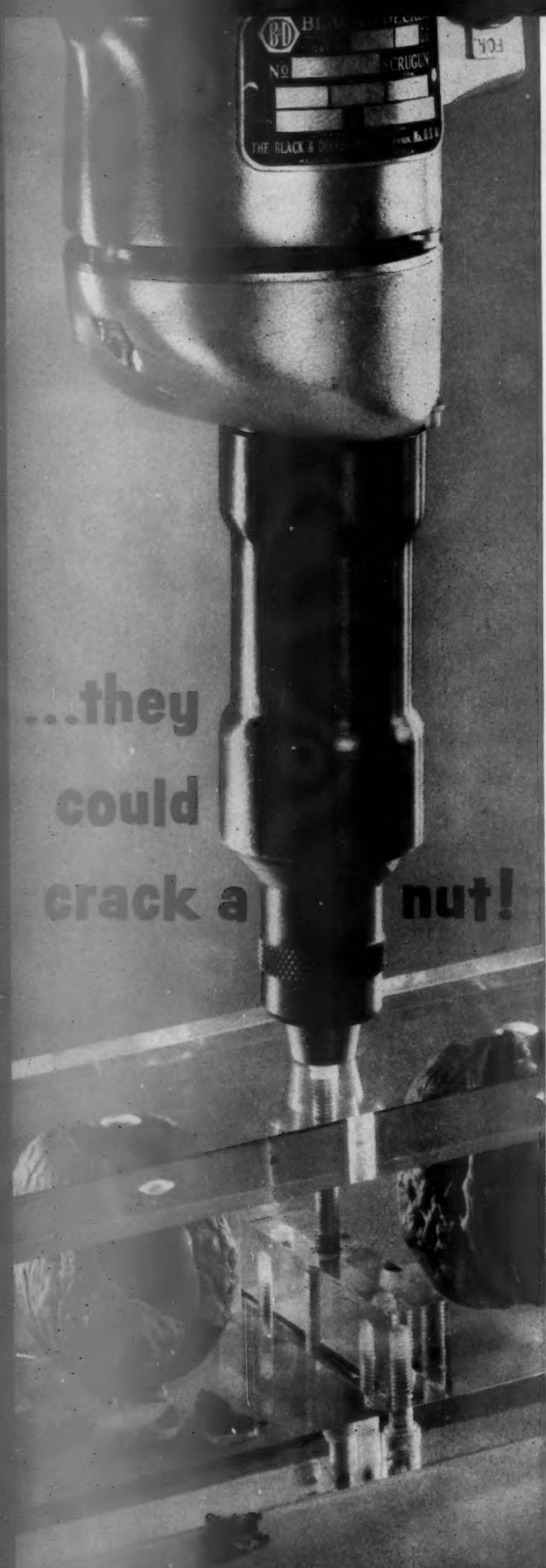
they wouldn't

crack an egg...

So powerful →

HERE'S GRAPHIC PROOF!

In this experimental rig, with power and speed set at a minimum, the Black & Decker Scrugun drives a screw so delicately that the torque doesn't crack an egg! With power and speed set at maximum (see next page), it drives the screw so powerfully that the torque can crack a nut!



...they
could
crack a
nut!

NOW Black precise control

New "Power-Speed Control" lets you choose the correct speed and tension—from finger-lightness to wrench-tightness!

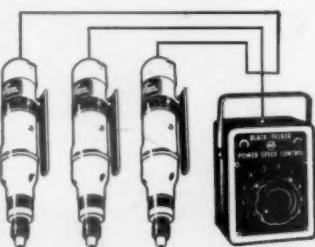
The big news in production-line assembly is the improved line of Black & Decker Scruguns! Now, with new "Power-Speed Control," they bring all the advantages of controlled electric power to every screwdriving application!

They drive machine screws ranging from No. 0 to $\frac{1}{4}$ " in all materials. You choose the precise torque you want—from 1 in. lb. to 145 in. lbs. You choose the precise speed you want—from 500 to 3000 rpm.—an infinite number of speeds for each torque adjustment. And operation is quieter, cooler, cleaner, with one-hand control.

Operating and maintenance costs drop. Armatures, bits and brushes last longer. Installation is quick and inexpensive—just plug it in and go!

Black & Decker gives you a choice of 56 models—power-built to last! Regardless of your application, or the type of driver you are now using, you can't afford to miss a free demonstration. See your Black & Decker distributor today or write: The BLACK & DECKER MFG. CO., Dept. 1710, Towson 4, Maryland.

B&D
"Power-
Speed
Control"



Unit handles as many as three adjustable clutch Scruguns. Reduces costs and increases life of tool. Rates at 5 amperes. Unlimited life.

Look in the Yellow Pages under "Tools-Electric" for Nearest Distributor.



Black &
Portable electric tools . . .

K Black & Decker SCRUGUNS® provide impossible with other power drivers!



56 MODELS TO CHOOSE FROM

No. 8 Scrugun:

Lightest, most compact tool for driving up to No. 8 screws. Handles up to No. 8 machine screws and nuts, up to No. 8 self-tapping screws and up to No. 8 \times 1 $\frac{1}{4}$ " wood screws.

New, Advanced No. 10 Scruguns

Single adjustable clutch and reversing switch permit close-quarter work and reduce weight. Drives up to No. 10 \times 2" wood screws, up to No. 12 self-tapping screws, and up to $\frac{1}{4}$ " diameter machine screws and nuts. Available as pistol grip handle model with "piggy-back" reversing switch . . . or center-drive model with paddle switch—with positive clutch available on both models.

No. 12 Scrugun:

Pistol-grip handle. Exclusive "piggy-back" reversing switch. Drives up to No. 12 \times 2" wood screws, up to $\frac{1}{4}$ " self-tapping screws, up to $\frac{1}{8}$ " \times 2" lag screws, and up to $\frac{1}{4}$ " diameter machine screws and nuts. Available with positive or adjustable clutches.

3 TYPES OF CLUTCHES!

Black & Decker adjustable clutches permit tightening to screw manufacturers' specifications . . . reduce kick-back . . . lower torque . . . cut operator fatigue . . . permit uniform adjustment . . . prevent overloading.



Single Adjustable Clutch minimizes stripping, tearing, reduces burring.

Positive Clutch . . . for driving self-tapping screws, drawing down wood screws . . . wherever definite torque adjustment is unnecessary.



Positive Clutch . . . for driving self-tapping screws, drawing down wood screws . . . wherever definite torque adjustment is unnecessary.

Decker®
power-built to last!

Now...a New advance in...

Gauge Safety!

Another step ahead in Marsh Gauges: the new Marsh "Safecase". Down to the final detail this gauge is developed for those applications where an unexpected surge of heavy, explosive over-pressure can occur.

In the "Safecase" a solid metal barrier protects the entire face. But, still more important, the *entire back* of the gauge is a thin, ductile plate, designed to open out when subjected to abnormal pressure. Back plate is held firmly to the case by two holding screws and cannot be dislodged by a pressure blowout.

In exhaustive tests it has never been possible to shatter the crystal or create any other dangerous condition in a "Safecase" gauge with its safety-release back. The accompanying illustration shows the result of one of a series of tests in which blank cartridges were fired in the back of the case without even breaking the crystal. Think what that means in safety to operating men!

Yes, an important development . . . but merely the kind you would expect from the manufacturer who originated the "Connoweld" tube, the "Marshallloy" case, the Mastergauge movement and practically all of the major advancements in pressure gauges. Ask for up-to-the-minute information.



**Pressure of explosive force
merely opens out safety back**

Instead of depending on blow-out plugs, entire back of Safecase Gauge is designed to yield to over-pressure. Photo at left shows actual result of firing cartridge within back of case. Safety-release back exhausted pressure. Front remained intact.



MARSH GAUGES

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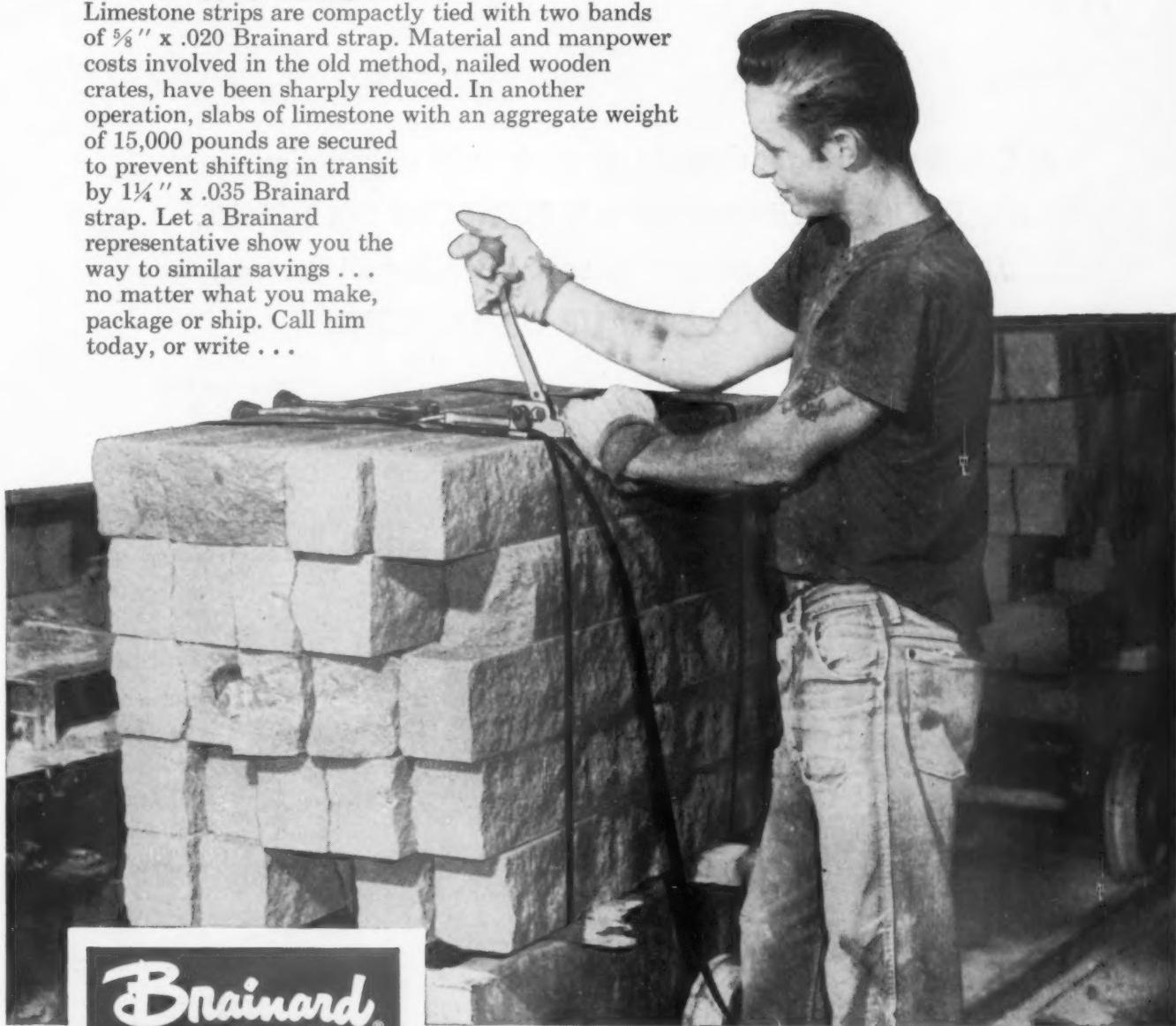
How

BRAINARD STRAPPING SERVICE

***slashed building stone
handling costs 50%***

With the help of Lew Dickson, a Brainard strapping expert, Empire Stone Co., Bloomington, Indiana, reduced limestone handling costs by more than 50% . . . cut shipping breakage to a minimum.

Limestone strips are compactly tied with two bands of $\frac{5}{8}$ " x .020 Brainard strap. Material and manpower costs involved in the old method, nailed wooden crates, have been sharply reduced. In another operation, slabs of limestone with an aggregate weight of 15,000 pounds are secured to prevent shifting in transit by $1\frac{1}{4}$ " x .035 Brainard strap. Let a Brainard representative show you the way to similar savings . . . no matter what you make, package or ship. Call him today, or write . . .



Brainard

SHARONSTEEL

STEEL DIVISION
SHARON STEEL CORPORATION

**THE BRAINARD STEEL DIVISION
of the Sharon Steel Corporation
Dept. P-10, Griswold Street, Warren, Ohio
MAKERS OF QUALITY STEEL STRAPPING**

For More Information Circle No. 186 on Inquiry Card—Page 17



On your purchase orders...

SPECIFY



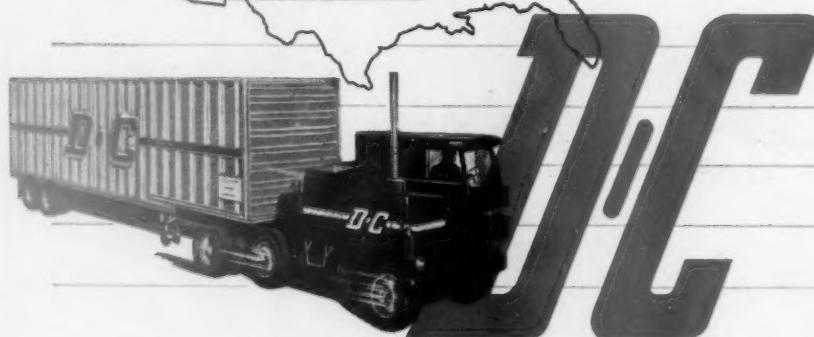
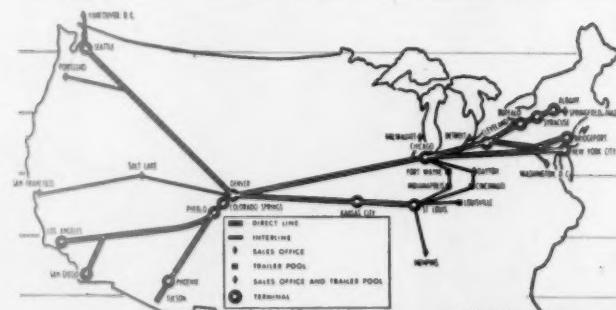
for Fastest, Safest Delivery
and to avoid Production Delays

D C delivers freight straight through to its destination—

NO FREIGHT TRANSFER BOTTLENECKS OR DELAY.

D C gives you one carrier responsibility all the way—

QUICK, EASY FOLLOW-UP OR TRACING.



TERMINALS IN:

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Albany
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THE ONLY COAST-TO-COAST CARRIER

Denver *Chicago*
TRUCKING CO., INC.

Prehistoric monster?

No. You're looking at the world's largest dredger... a hungry man-made monster of a machine that can move a mountain of earth in a day.

Imagine the brute power it takes to move this behemoth—even more, the joint-strength it needs to hang together despite the strains and stresses it undergoes! It typifies what's been happening in the earthmoving equipment field. They're making them bigger, more powerful, more rugged.

What helps hold such hard-working equipment together?

Plenty of standard nuts and bolts. They have to be strong and flawless, these fasteners . . . completely reliable.

RB&W—A MAJOR AND RELIABLE SUPPLIER

A leader for 111 years, RB&W turns out the finest quality fasteners possible—for the heavy equipment field as for so many other major fields in industry. Modern facilities, new techniques, long experience . . . all combine to make RB&W fasteners truly the "strong point of any assembly".

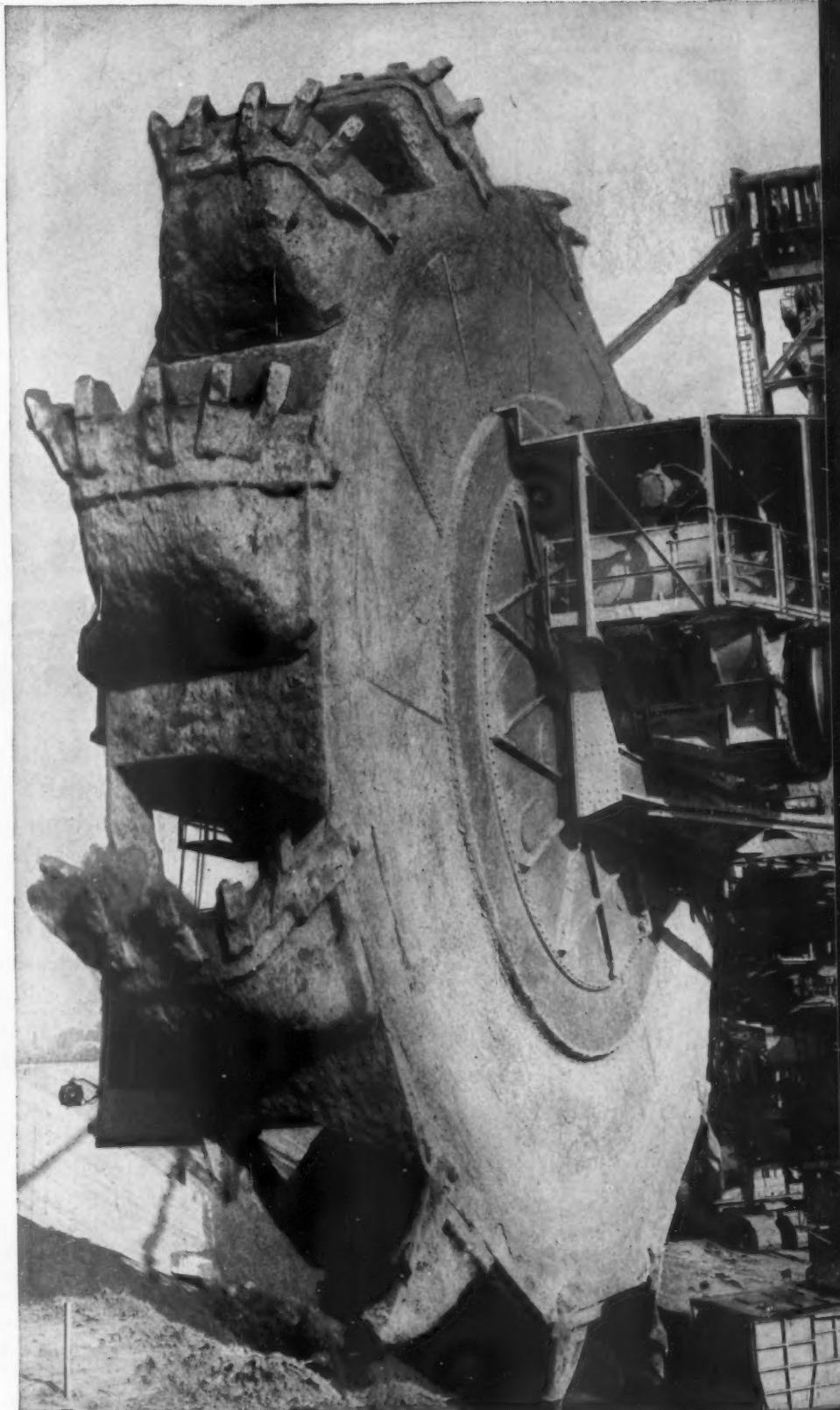
CONTACT THE RB&W "FASTENER MAN"

Proper application of standard fasteners can save you money. Ask the RB&W "Fastener Man" to show you how. Contact your nearest RB&W office.



RUSSELL, BURDSALL & WARD
BOLT AND NUT COMPANY

Plants at: Port Chester, N.Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. Additional sales offices at: Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. Sales agents at: Milwaukee; New Orleans; Denver. Distributors from coast to coast.



RB&W FASTENERS - Strong Point of any assembly



The Metal Man says:

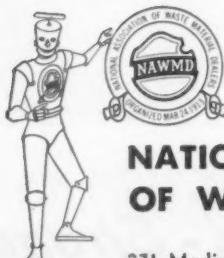
"TO PLANTS LIKE THIS, I BRING INCREASED METAL SCRAP INCOME!"

Have you met the Metal Man? He is the symbol adopted by the Metal Dealers Division of the NAWMD . . . the symbol of reliability, profitable counsel and outstanding service.

As a generator or consumer of non-ferrous scrap, it will pay you to "look for the Metal Man" . . . or in other words, consult a NAWMD member dealer. As a leader in his industry, his wide scope of activity equips him to provide you with valuable assistance in setting up the most profitable methods of scrap recovery.

"Look for the Metal Man" to protect your company's interests. You save time and trouble, and your firm's metal scrap income . . . often a significant part of profits . . . goes *UP!*

*For counsel on non-ferrous metal scrap, be
sure to consult a NAWMD member dealer*



METAL DEALERS DIVISION

Always look for this seal

**NATIONAL ASSOCIATION
OF WASTE MATERIAL DEALERS**

271 Madison Ave.

New York, N.Y.

PURCHASING

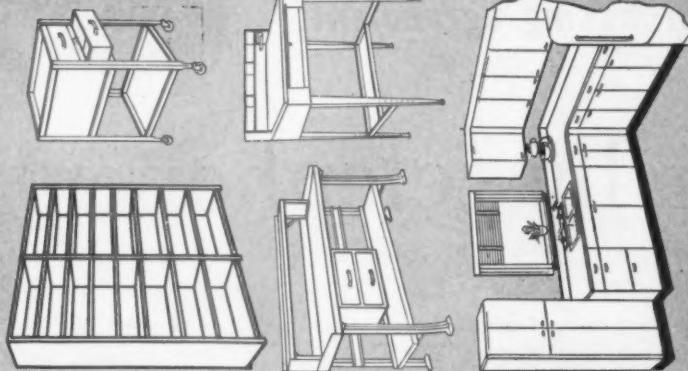
For More Information Circle No. 190 on Inquiry Card—Page 17

Ask your LYON Dealer for

Lyon also has
complete facilities
for manufacturing
special items
to your
specifications

STEEL EQUIPMENT

for BUSINESS-INDUSTRY-INSTITUTIONS STEEL KITCHENS for THE HOME



For More Information Circle No. 190 on Inquiry Card—Page 17

OCTOBER, 1956

A PARTIAL LIST OF LYON STANDARD PRODUCTS

- Shelving • Kitchen Cabinets • Tool Trolleys • Chests and Sales
- Lockers • Cabinet Benches • Bar Racks • Display Equipment
- Stools • Storage Cabinets • Tool Boxes • Toolroom Equipment
- Bin Units • Drawing Tables • Parts Cases • Wood Working Benches
- Flat Drawer Files • Revolving Bins • Hanging Cabinets
- Tool Stands • Shop Boxes • Tool Trays • Drawer Units • Bench Drawers
- Service Carts • Sorting Files • Work Benches • Hopper Bins
- Coat Racks • Filing Cabinets • Bench Desks

LYON METAL PRODUCTS, INC.

General Offices: 1033 Monroe Ave., Aurora, Ill.
Factories in Aurora, Ill. and York, Pa.
Dealers and Branches in All Principal Cities



**Quickest, friendliest
way to reach a
purchasing agreement:**

Talk it over by telephone

There's nothing like a *personal discussion* to settle questions of quality, price, delivery, etc.

By telephoning an out-of-town supplier, you can reach an agreement quicker and cheaper than any other way—without ever leaving your desk.

Using the telephone regularly helps you (1) find the best price ... (2) keep goods flowing promptly to your plants and

dealers... (3) combine orders into truck or carload quantities. And it speeds many other equally important jobs.

We have some suggestions based on the experience of purchasing men in many companies—large and small. We'd like to pass them along to you. Call your Bell Telephone Business Office. A representative will visit you at your convenience.

LONG DISTANCE RATES ARE LOW

Here are some examples:

Cleveland to Pittsburgh	60¢
New York to Washington, D. C.	80¢
Dallas to New Orleans	\$125
Chicago to Denver	\$160
Boston to Los Angeles	\$250

These are the daytime Station-to-Station rates for the first three minutes. They do not include the 10% federal excise tax.

Call by Number. It's Twice as Fast.





The face that launched a thousand chips

PHOTOGRAPHED AT QUINCO TOOL PRODUCTS, DETROIT, MICH.

"Better finish—much cooler cutting—three times the production." This report on "V40" Bond Tool Room Wheels is typical of thousands received at CARBORUNDUM from tool rooms in every state of the union. Roughing end mills, finishing cutters, profiling multi-tooth cutters, backing off broaches, sharpening

hobs...no matter what your job...one bond, "V40", will serve you better than any other. Wheel structure and bond combine to make "V40" wheels hold form and size longer than any other tool room wheels—cut costly down-time for dressing midway through a job. Yet the composition of the bond is such that "V40" wheels

dress quickly and easily when necessary. Call your CARBORUNDUM Distributor or salesman for a trial, and see how easy "V40" wheels are to use...with profit! For performance reports on tool room grinding, write The Carborundum Co., Niagara Falls, N. Y. In Canada: Canadian Carborundum Co., Ltd., Niagara Falls, Ont.

Through application "know-how" and product quality

CARBORUNDUM

REGISTERED TRADE MARK

continually puts more sense in your abrasive dollar



Never a dull moment

PHOTOGRAPHED AT INDUSTRIAL STAMPING & MFG. CO., DIV. OF VINCO CORP., DETROIT, MICH.

Talk about a production booster! When you get more work from each belt, your output goes up, costs come down. That's what happens when your plant switches to Resin Industrial Cloth Belts by CARBORUNDUM. The stronger all-resin bond resists frictional heat, humidity, high speed

and shock...to give you many more "miles" of wear. And the sharp aluminum oxide grain on a tough cloth backing gives maximum and continuous cutting action. Most important of all—you turn out a better product...a finer finish, free from burn...in faster time. Why

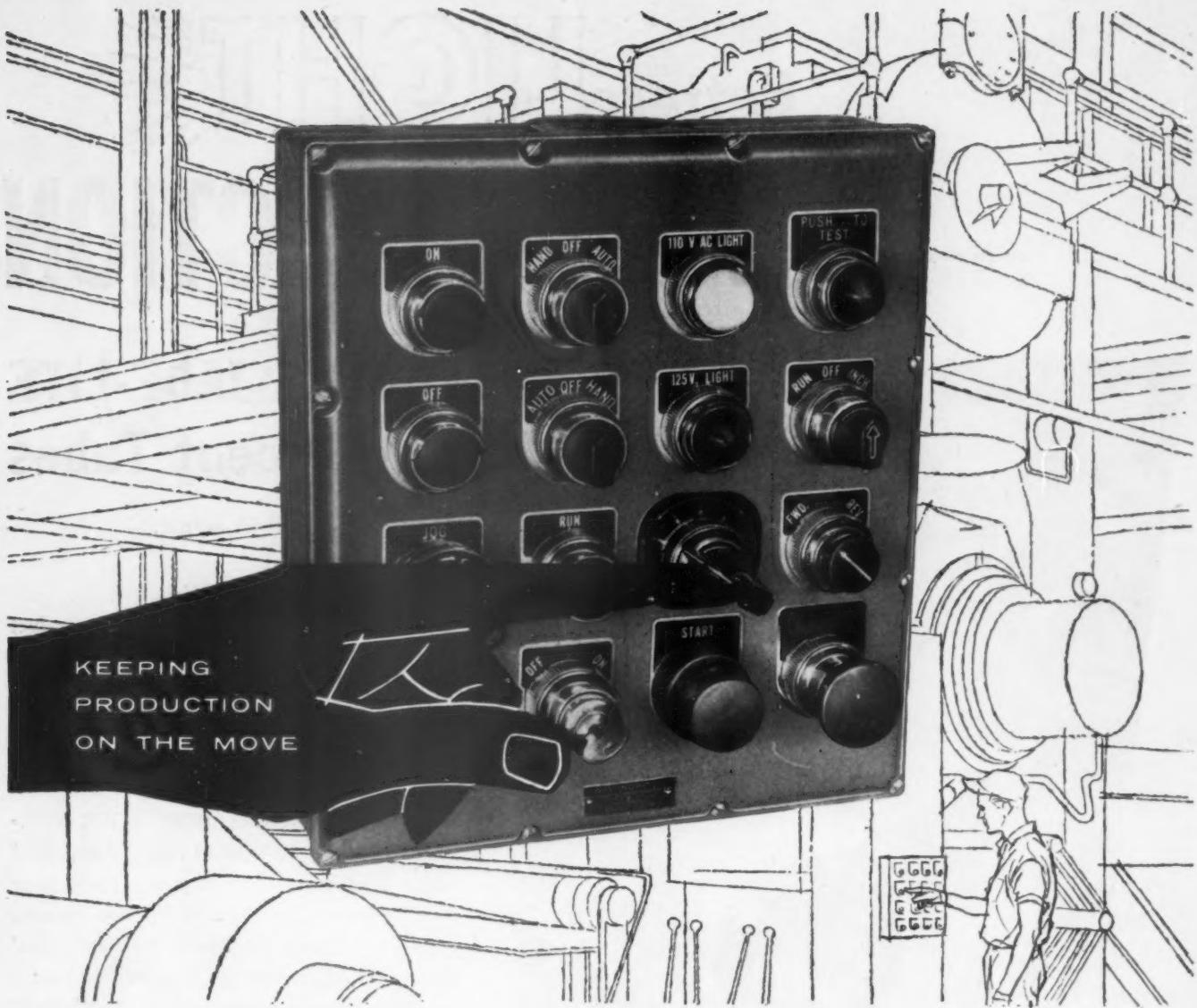
not let your CARBORUNDUM Distributor or salesman demonstrate this tremendous cost-cutter in your shop! Call him today, or write The Carborundum Company, Niagara Falls, New York. In Canada: Canadian Carborundum Company, Ltd., Niagara Falls, Ontario.

Through application "know-how" and product quality

CARBORUNDUM

REGISTERED TRADE MARK

continually puts more sense in your abrasive dollar



...with Westinghouse Oil-Tite control stations—1 to 16 units

Interchangeable parts — stations, contact blocks, operators and indicating lights — right off the shelf, quickly give you a "tailor-made" Westinghouse Oil-Tite* control station to meet the requirements of any heavy-duty industrial equipment application.

Enclosures — die-cast and Bonderized — include cork-neoprene gasketing and close machine fits as positive seals against exposure to oil, coolants,

*Trade-Mark

cutting compounds, water and other foreign matter.

New Pushbutton Guide

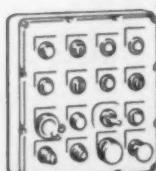
For more facts on why it will pay you to standardize with Westinghouse control stations, get a free copy of the new *Pushbutton Guide*, booklet B-6749. See your nearby Westinghouse salesman or write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-30210



WATCH WESTINGHOUSE!

WHERE BIG THINGS ARE HAPPENING FOR YOU!

**THERE'S A WESTINGHOUSE PUSHBUTTON
TO MEET EVERY APPLICATION NEED!**



better **LIGHT** assures better **PRODUCTION**



YOUR LOCAL LUSTRA MAN will be pleased to give you the benefit of his specialized experience on YOUR LIGHTING PROBLEMS. He can show you how with LUSTRA DOUBLE-DUTY GUARANTEED DATED LAMPS you can "See more and save more."

LUSTRA JADE-LITE Fluorescent Tubes

- Give greater light output.
- Reduce glare.
- Help eliminate eyestrain.
- Boost production output and product quality.
- Reduce lamp replacement and maintenance costs.
- Are GUARANTEED* for extra-long burning life.

SEE FOR YOURSELF HOW YOUR PERSONNEL WILL SEE BETTER. Your local Lustra Man is ready to demonstrate—in your plant, under the conditions in *any* working area—how Jade-Lites can increase your employees' efficiency. Get the facts on the complete Lustra line for every lighting requirement: Double Duty Incandescent and Fluorescent Lamps, Hi-Bay Reflector Lamps, Concentrators for localized lighting, Weatherproof Spotlights and Floodlites, Rough Service and Vibration Service Types, Industrial Infra-Reds, Fluorescent Fixtures.

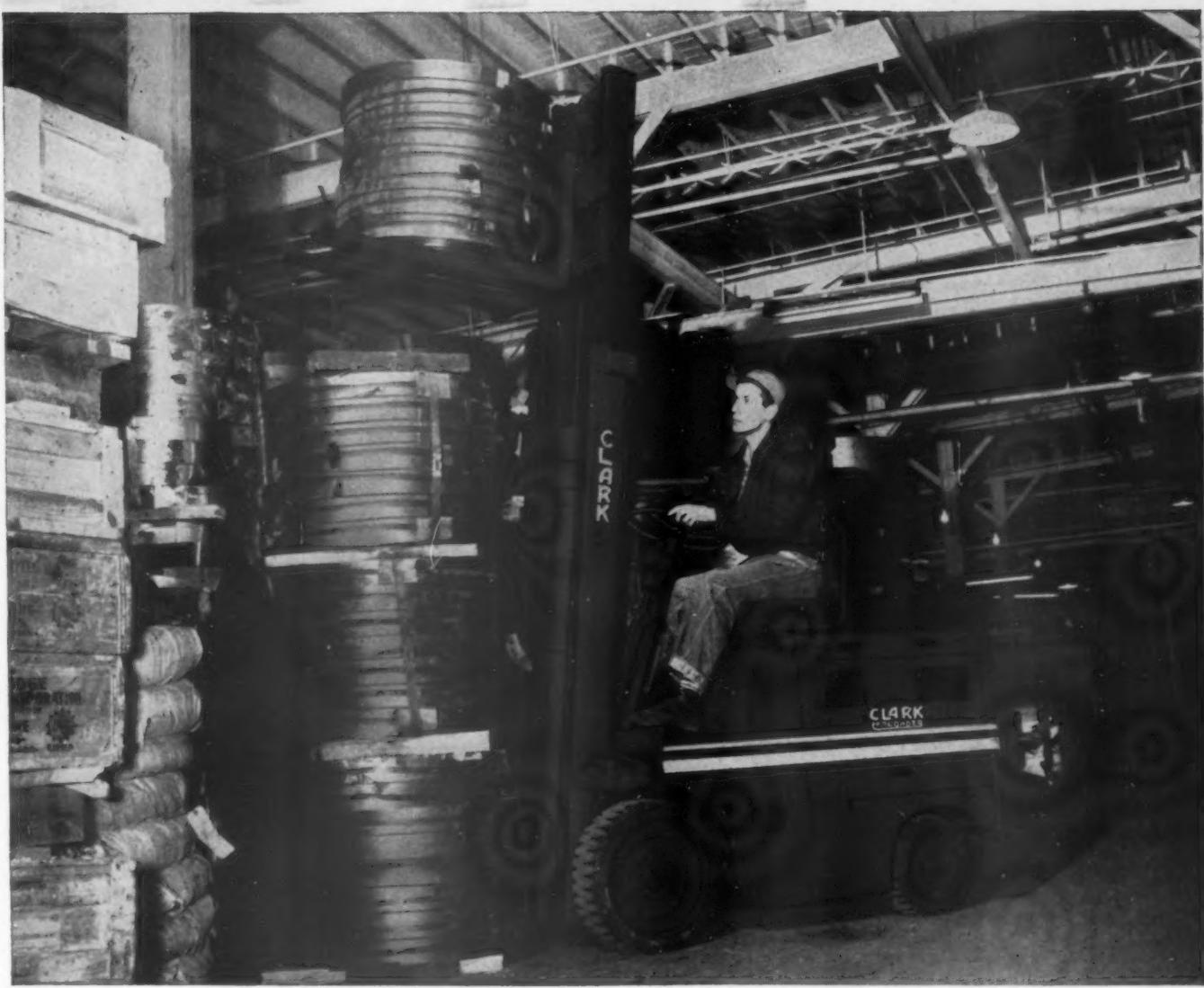
*Find out how our **GUARANTEE** on our **DATED Lamps** assures this longer burning life.

Send for complete descriptive literature.

Lustra Corporation, Dept. P-1056
36 Washington St., Brooklyn 1, N. Y.

Lustra
AMERICA'S DATED LAMPS

For More Information Circle No. 194 on Inquiry Card—Page 17



A big reason for the Clark Electrics at General Industries, Elyria, Ohio, is the dependable service offered by Material Handling Equipment Corp., Cleveland. This service is typical of all Clark dealers. It's just smart business to do business—locally.

Clark Electrics at General Industries

and there's a good reason . . .

No one can afford production lags. But the before and after of all modern production is efficient materials movement. Electric trucks move material at the lowest cost per ton mile—and with Clark Electrics, you get the electric truck with the power saving dual field motor that provides more ton-miles per battery charge.

But it takes more than features. How about 3 years from now, or 5 years, or 10? That's when you depend on service—fast, local service.

And that's where your local Clark dealer comes in. He offers prompt mobile service for emergencies, the largest supply of service parts in the industry—genuine Clark parts that are warranted

and guaranteed for quality. And he provides a completely equipped shop for rebuilding, a fleet of rental trucks to help you over peak work loads. Fact is, he offers a complete service package. Look in the Yellow Pages under "Trucks, Industrial" for the Clark dealer nearest you.

A BETTER BUY WITH LOCAL SUPPLY—Genuine Clark Parts

CLARK®
EQUIPMENT

Industrial Truck Division
CLARK EQUIPMENT
COMPANY
Battle Creek 23, Michigan



New IBM Electric Typewriter dressed up in Die Castings by MT. VERNON

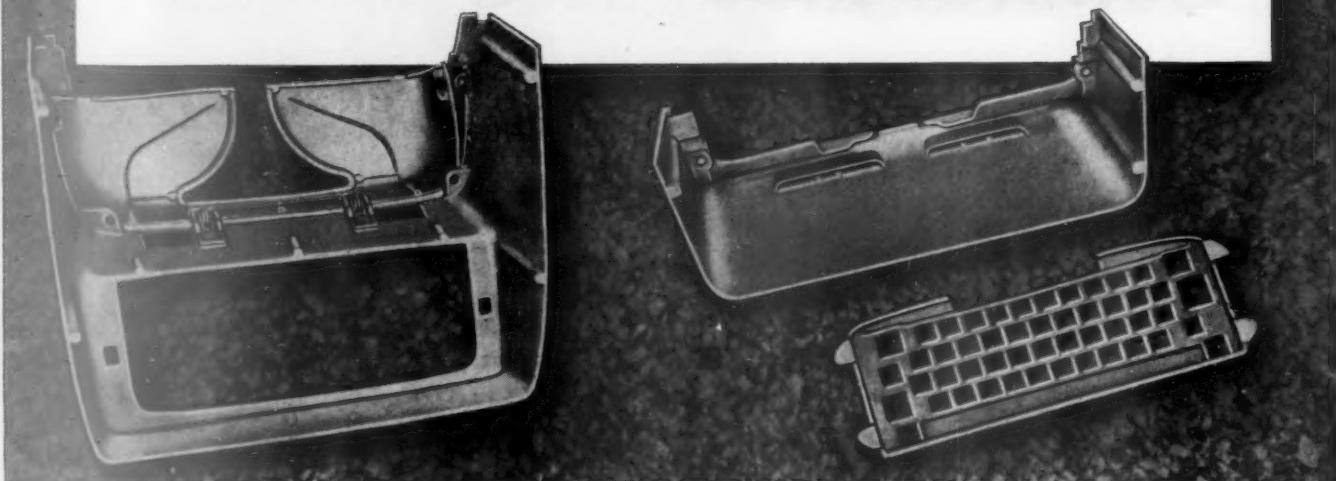
CASE HISTORIES FROM
MT. VERNON FILES

"New from carriage to keyboard, and years ahead in results, performance, design," is how IBM describes its new electric typewriter. And as with any leader in manufacturing, "new in design" at IBM means best in manufacturing methods. That's why this electric marvel is housed in die castings. Note how only four strong, thin-walled, large aluminum sections are used to completely enclose the complex machinery in a handsome example of modern styling. Note particularly the accurately-fitting sections and keyboard, and gracefully-rounded contours, always a delight to the eye, but often a manufacturing headache.

Not so, however when you use Mt. Vernon die casting — the modern, high-speed, low cost production method that produces the most intricate parts, frequently so flawlessly perfect that only a final painting step is required before

assembly. Best of all is the complete service available from Mt. Vernon's coordinated designing, die-making, casting, and machining facilities, all under one roof, which can supply die cast zinc and aluminum parts ready for use; reducing need for machining and finishing.

A switch to die casting or to a complete die casting service like ours, may be your next step. Let's discuss it.



SALES REPRESENTATIVES

Mr. Grant Eller
6 East 194th St., Cleveland, Ohio
Mr. David King
230 Grant Boulevard, Syracuse, N. Y.

Mr. William Sauers
101 Briarcliff Road, Rochester, N. Y.
Mr. Arthur Diamond, Tools Incorporated
86 Bethlehem Pike, Philadelphia, Pa.

Mr. Jerome J. Theobald
9 East Genesee St., Skaneateles, N. Y.
Mr. George E. Hahl
39 South Munn Ave., East Orange, N. J.

For More Information Circle No. 196 on Inquiry Card—Page 17



Lapointe Machine Tool Company, Hudson, Massachusetts

FIRST OF ITS KIND IN THE WORLD!

...And It's Lubricated by Cities Service Pacemaker 400 T Oil!

LAPOINTE MACHINE TOOL COMPANY, originator of the broaching method of cutting metal over 50 years ago, has now originated the first vertical broaching machine with variable speed electro-mechanical drive.

Purpose of the huge, gear-driven machine is to increase tool life up to 500% through smoother operation, thus saving down time and producing more accurate work.

Selection of a lubricant for the new machine was of special importance because of the tremendous pressures it develops: normally 30,000 pounds, sometimes up to 60,000 pounds. Of the many brands of lubricants Lapointe tested, Cities Service Pacemaker 400 T had the necessary requirements for the job . . . so naturally, this superior lubricant got the job.

"We test the machines with Pacemaker 400 T at the factory and then put it in again when the broaches are assembled at the buyer's plant," says Lapointe. "It offers all the characteristics we need: Good film strength, high viscosity index, and exceptional anti-foam and anti-oxidant qualities. Needless to say, we're pleased and impressed with this Cities Service lubricant."

Like scores of others, Lapointe has discovered the search for a proper lubricant ends at the Cities Service label. Altogether, there are hundreds of Cities Service

products for the exacting needs of industry. For more information, talk with your nearby Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

Quick Facts About New Broaching Machine

USES: Now used for broaching aircraft engine turbine buckets, but can be adapted to general broaching.

ADVANTAGES: Increases tool life 400-500% through smoother operation, less down time. Produces more accurate work. Variable cutting speed: 12 to 75 FPM. Available in single or double ram models with 72" to 100" stroke.

Quick Facts About Pacemaker 400 T Oil

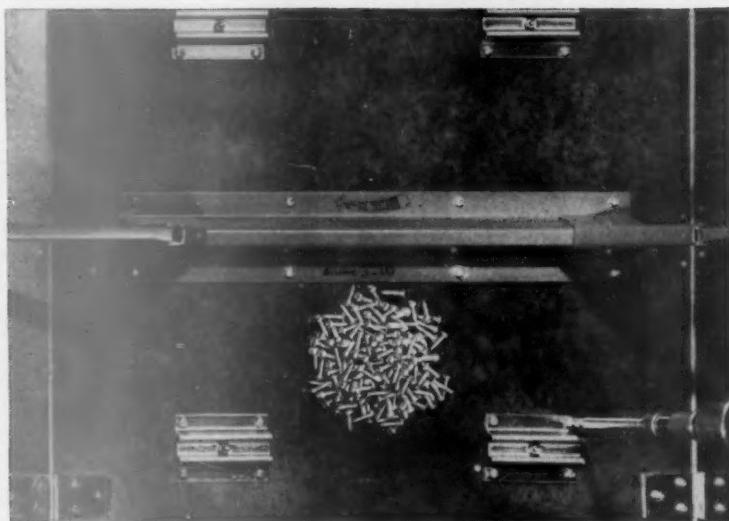
USES: Propulsion turbine units where oil is circulated under heavy pressure. Widely used in naval and commercial vessels, high speed industrial machinery.

ADVANTAGES: High viscosity index, excellent heat resistance and film strength. Chemically fortified against oxidation, rust, and foaming.

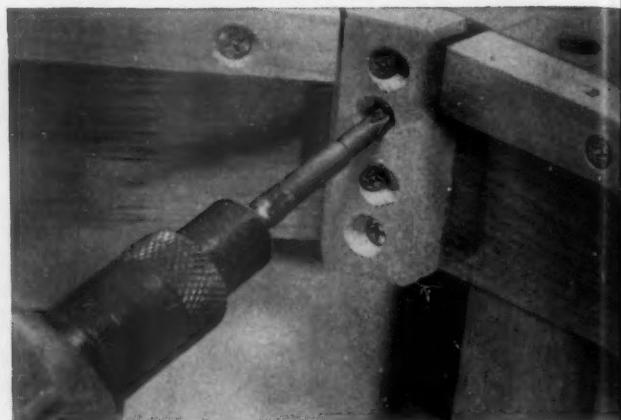
CITIES SERVICE
QUALITY PETROLEUM PRODUCTS

For More Information Circle No. 197 on Inquiry Card—Page 17

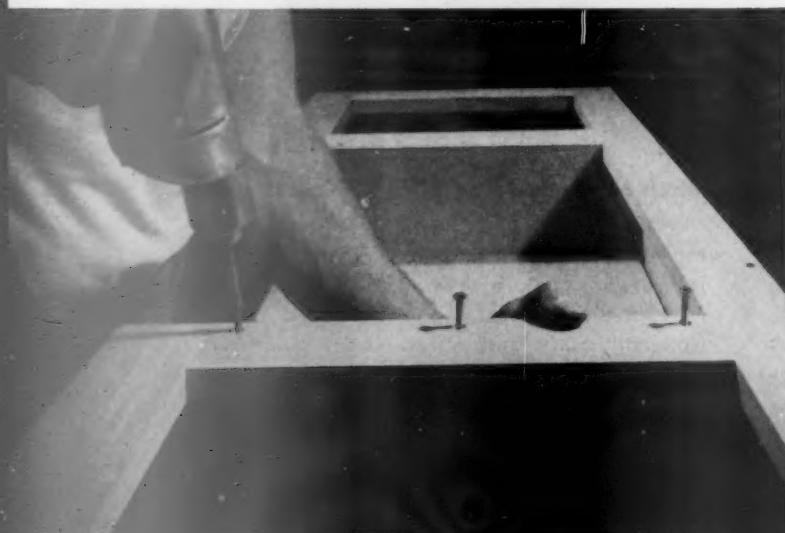
Here's Why Three Fine Furniture Makers Use **PHILLIPS** CROSS RECESSED HEAD **SCREWS**



THE DAYSTROM FURNITURE COMPANY uses Phillips screws because of their quicker assembly and greater strength, says management. And the men on the production line agree. Mr. Butinski, assembler for the company, says, "It's a pleasure to work with Phillips screws, they're the easiest screw to handle and they cut down rejects."



THE COLUMBUS SHOW CASE COMPANY also knows the value of Phillips screws. "By reducing the likelihood of driver slippage, the recessed Phillips head cuts down the losses we suffered in the past," states Mr. Icenhower, production superintendent of the company. "Such repairs," he continued, "easily cost us at least \$25.00 each time they occurred in the past, including labor and material."



FICKS REED COMPANY uses Phillips screws to assemble its fine furniture. The desk panels shown here are held by twelve Phillips screws. "By using Phillips screws in our assembly, we have increased production speed, reduced waste, improved assembly efficiency, and eliminated time-consuming delay of ground-out screws," says Mr. Boehl, foreman of the company's assembly department.



Members of Screw Research Association

American Screw Company • Atlantic Screw Works, Inc. • The Blake & Johnson Co. • Central Screw Company • Continental Screw Co. Elco Tool and Screw Corporation • Great Lakes Screw Corp. • The H. M. Harper Company • The Lamson & Sessions Company • National Lock Company • The National Screw & Manufacturing Company • Parker-Kalon Division, General American Transportation Corporation Pheoli Manufacturing Co. • Scovill Manufacturing Company • Shakeproof Division Illinois Tool Works • The Southington Hdwe. Mfg. Company • Sterling Bolt Company • Universal Screw Company • Wales-Beech Corporation

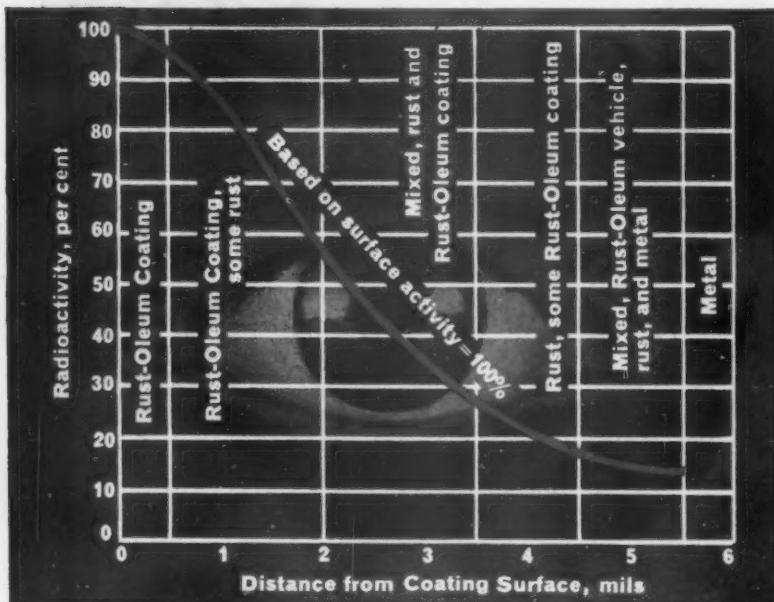


THE FASTENERS OF TODAY...
AND OF THE FUTURE
X marks the spot
the mark of extra quality

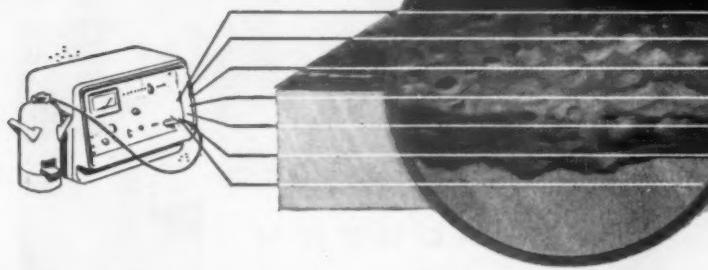
Pledged to highest standards...

The Phillips Screw manufacturers listed here cooperate to turn out a uniformly high standard of quality. As sponsors of the Phillips Cross-Recessed-Head Standards Committee they adhere to the established dimensional standards, gauges, and gauging methods which will best serve industry.

See Rust-Oleum penetrate rust to bare metal through the "Eyes" of Radioactivity.



Curved line illustrates Rust-Oleum penetration through rust at each mil level as recorded by Geiger Counter.



Geiger Counter traces Rust-Oleum penetration to bare metal! In nearly three years of radioactive research, Rust-Oleum's specially-processed fish oil vehicle was radio-activated and formulated into Rust-Oleum 769 Damp-Proof Red Primer — then applied to rusted test panels. Rust-Oleum's specially-processed fish oil vehicle was then traced through the rust to bare metal by Geiger Counter.

This penetration means rust-stopping power, because the fish oil vehicle works its way into the tiny pits in the metal where it drives out air and moisture that cause rust. Important savings are yours, because Rust-Oleum can be applied directly over sound rusted surfaces — usually eliminating costly surface preparations. Attach coupon to your business letterhead for your copy of the thirty-page report entitled, "The Development of a Method To Determine The Degree of Penetration of a Rust-Oleum Fish-Oil-Based Coating Into Rust On Steel Specimens," prepared by Battelle Memorial Institute technologists. Prompt delivery of Rust-Oleum is assured from your nearby industrial distributor.



There is only one Rust-Oleum.
It is distinctive
as your own fingerprint.

RUST-OLEUM®



STOPS RUST!

Rust-Oleum is available in practically all colors, including aluminum and white. See our complete catalog in *Sweets*, or write for information.

ATTACH TO YOUR LETTERHEAD—MAIL TODAY!

Rust-Oleum Corporation
2433 Oakton Street
Evanston, Ill.



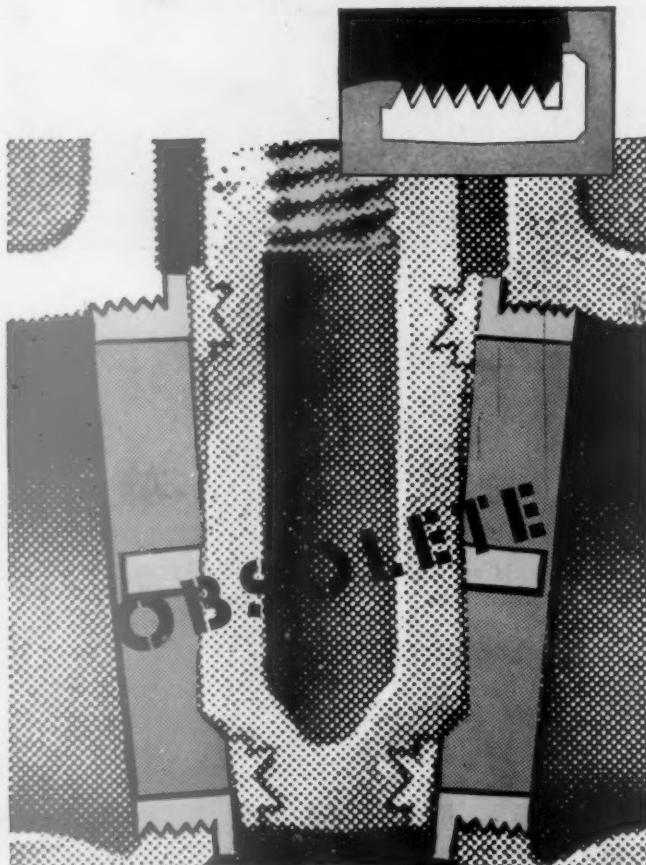
- Complete literature with color charts.
- Thirty-page report on Rust-Oleum penetration.
- Nearest source of supply.

ARE YOUR TRIM SPECS UP TO DATE?

Put an end to iron valve seat ring and stem-wedge problems. Make sure your specifications call for modern, trouble-free OIC end-seated seat rings and T-head stems.

There is no extra cost and yet this superior design will reduce your maintenance overhead many times.

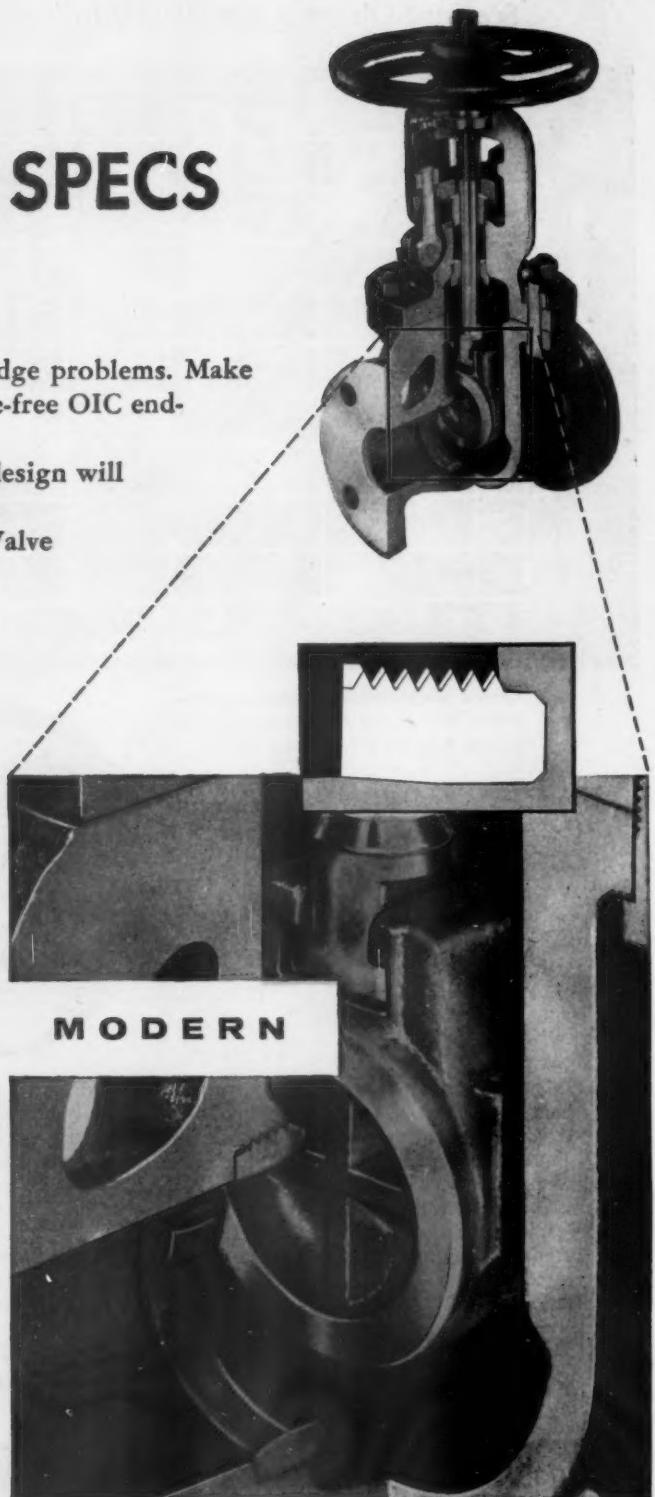
For specification details write for OIC Iron Valve Bulletin No. 1005. The Ohio Injector Co., Wadsworth, Ohio.



**Shoulder-seated rings
Screwed stem-wedge connection**

Ring design causes turbulence. Open back of ring is easily eroded. Ring is seated in tension. Continuous operation compresses and tends to loosen it, developing serious leaks.

A screwed stem-wedge connection is rigid. Closing valve under pressure tends to bind wedge, make closing difficult and perhaps bend the stem.



**OIC end-seated rings
T-head, stem-wedge connection**

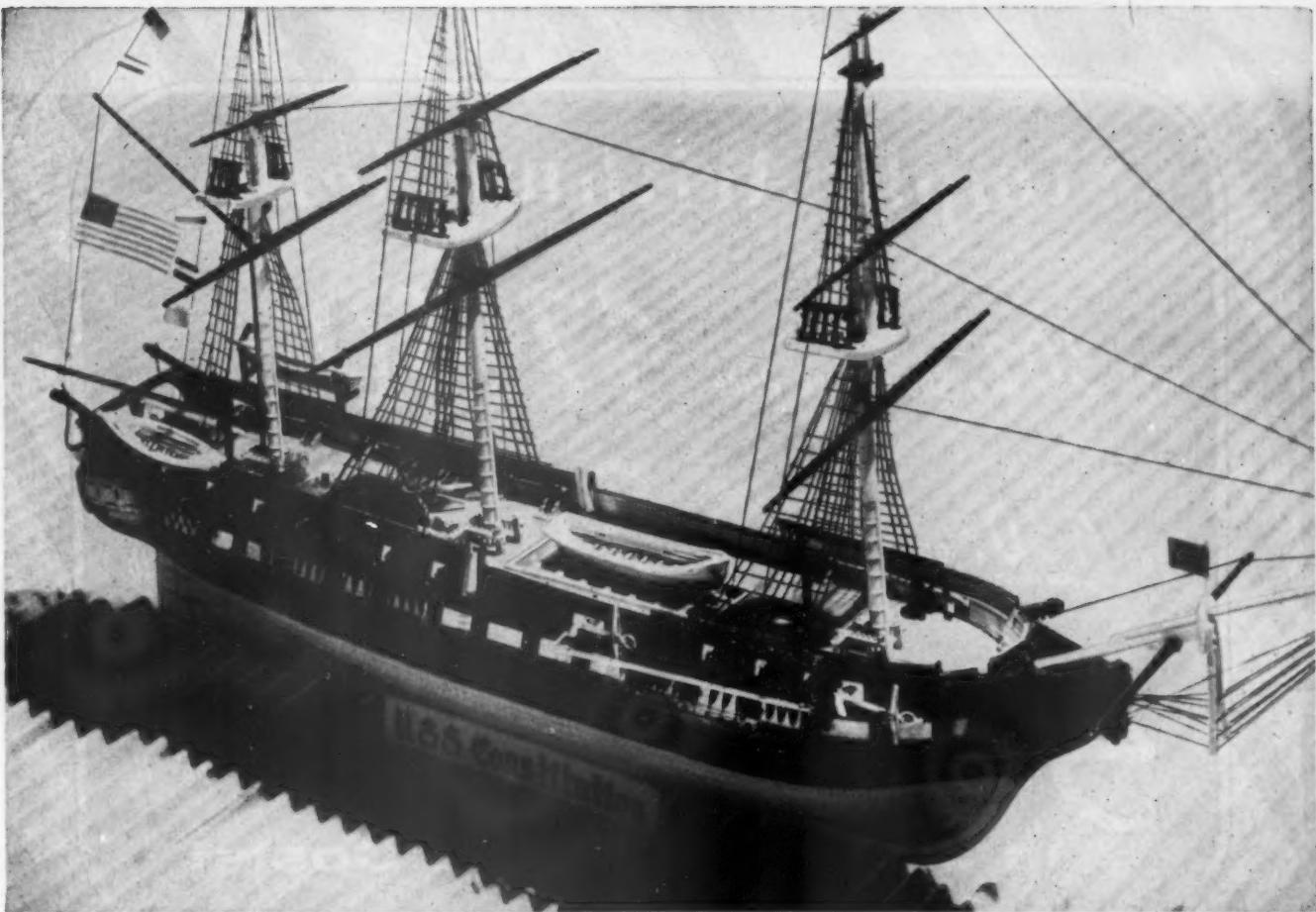
Streamlined flow-through. No pockets open to attack by erosion. Ring is seated in compression. Stays tight even in continuous operation.

T-head stem-wedge connection is flexible. Wedge can't bind. Closing is easy and stem is unaffected.

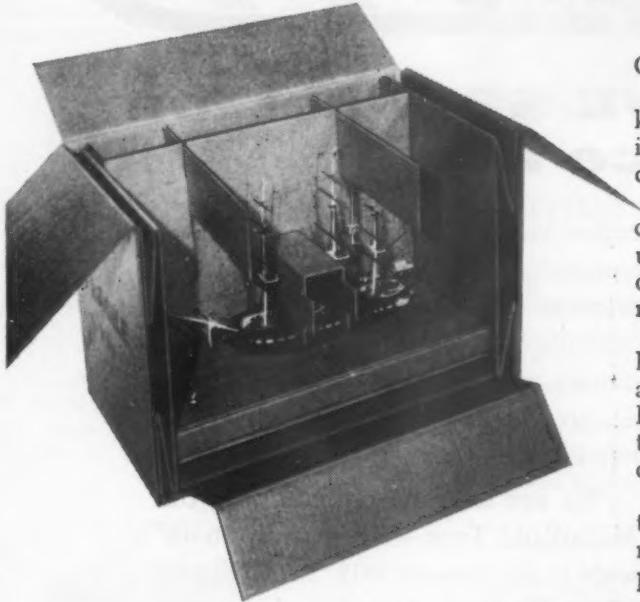


VALVES

FORGED & CAST STEEL, LUBRICATED
PLUG, BRONZE & IRON VALVES



"Old Ironsides" rides out rough handling in Gair container



Here's the container job that "couldn't be done"—before Gair container engineers took over.

Revell Inc., the leading makers of do-it-yourself model kits, wanted to ship one completely assembled model sailing ship to each of its dealers around the world for use as a display piece.

Imagine designing a container that will protect a delicate scale model, like this USS Constitution, against the unavoidable manhandling and rough treatment any cross-country or seagoing shipment is subject to. Quite an assignment Revell turned over to Gair.

Yet today these fragile scale models are arriving safely in hobby shops, department stores and other retail outlets here and abroad. "Ingeniously effective" is Revell President Lewis H. Glaser's description of the Gair engineered container "that makes it possible for us to ship our delicate display models anywhere in the world."

If damage to your product in shipment is higher than you think it ought to be, give us a call. We'll show you how much a Gair engineered container can reduce breakage—and prove it by actual test shipments *before* we ask for the order.

YOU'RE LIVING NEXT DOOR TO THE EXPERT

GAIR CONTAINER PLANTS: Atlanta, Ga. • Cambridge, Mass. • Cleveland, Ohio • Holyoke, Mass. • Jackson, Miss. • Los Angeles, Cal. • Martinsville, Va. • New Orleans, La. • No. Tonawanda, N. Y. • Philadelphia, Pa. • Plymouth, Mich. • Portland, Conn. • Richmond, Va. • Syracuse, N. Y. • Teterboro, N. J.



GAIR

SHIPPING CONTAINERS • FOLDING CARTONS

PAPERBOARD • KRAFT BAGS AND WRAPPINGS

ROBERT GAIR COMPANY, INC. • 155 EAST 44TH STREET • NEW YORK 17, N. Y.

SC.6.19

For More Information Circle No. 201 on Inquiry Card—Page 17

Simple Arithmetic...

Type 302, Sheet Base Price **47.50** cents per lb.

Type 430, Sheet Base Price **36.75** cents per lb.

Saving 10.75 cents per lb.
in Stainless SHEET Costs!

**Now you can SAVE \$215 per ton
in base price alone!**

Many designers and fabricators who are currently using Type 302 stainless can, in numerous applications, specify Type 430 straight chromium stainless and take advantage of the 10 $\frac{3}{4}$ cents per pound difference in base price. Some of our customers are already saving more than \$215 per ton using our 430 MicroRold stainless sheet.

The steel industry estimates that 50% of all stainless sheet applications could satisfactorily employ Type 430, the least

expensive of all stainless grades, as an economical and practical material. When properly applied, Type 430 has all the desirable qualities of beauty, corrosion resistance, strength, long life and low maintenance that no other material, except stainless, can offer.

We are currently producing our MicroRold Type 430 sheets up to 48" wide in thicknesses .005" to .109" with 2B or 2D finishes; and in thicknesses .010" to .109" in No. 3, 4 and 7 finishes.

Send for Your copy, "Care and Use of 430 MicroRold Stainless Steel"

Washington Steel Corporation

10-N WOODLAND AVENUE, WASHINGTON, PA.



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For More Information Circle No. 203 on Inquiry Card—Page 17→
PURCHASING

How you profit by using ...

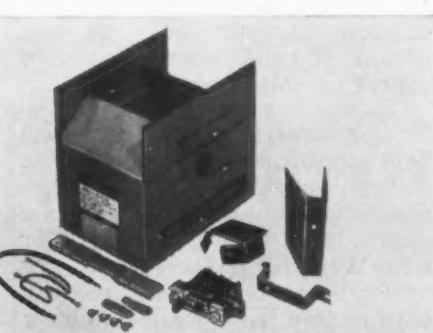
6 KITS TO MODIFY GENERAL ELECTRIC MAGNETIC STARTERS



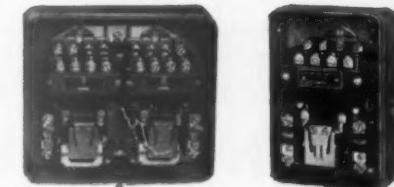
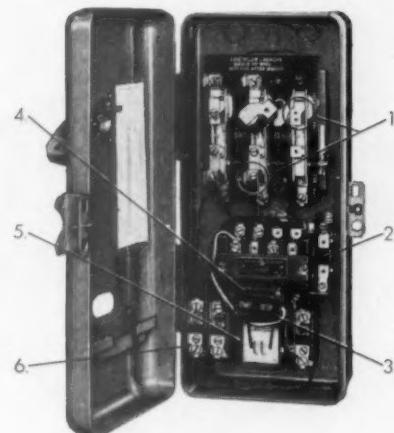
4. SELECTOR SWITCH fits into same cover knockout as the pushbutton unit, and gives you a choice of ON, OFF, or AUTO. setting.



5. STRONGBOX COIL can be changed quickly and easily for different voltage ratings. There is no need to disturb power wiring.



6. 3RD OVERLOAD RELAY can be added, whenever needed, to G-E magnetic starters. A screwdriver is the only tool necessary.



KITS PERMIT ON-THE-SPOT MODIFICATION OF G-E STARTERS

These six modification kits modify any G-E across-the-line non-reversing, combination, or reversing starter. This means that your distributor can give you off-the-shelf delivery of all these forms.

If you now stock modified starters, these kits—plus standard starters—will permit you to cut inventories of "specials" and

still have the starters you need. All modifications can be made quickly, and a screwdriver is the only tool needed.

Send in the coupon below for a new bulletin, complete with ordering data and "how-to-do-it" pictures of each kit. Your nearest General Electric Distributor will be glad to give you additional information.

Advertising and Sales Promotion Section 733-17
General Electric Company
Bloomington, Illinois

Please send me a free copy of MODIFICATION KITS FOR MAGNETIC STARTERS GEA-6481

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COMPANY _____

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CITY _____ STATE _____

GENERAL  ELECTRIC

TAYLOR

Laminated Plastics
Vulcanized Fibre

Shop Talk

TAYLOR FIBRE CO.

Plants in Norristown, Pa. and La Verne, Calif.

PHENOL-MELAMINE-SILICONE-EPOXY LAMINATES • COMBINATION LAMINATES • COPPER-CLAD LAMINATES • VULCANIZED FIBRE

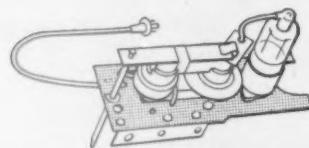
Tips for designers



Aircraft fuel gage tank unit uses a tube of Taylor epoxy glass base laminate . . . an unusual material noted for excellent corrosion resistance and electrical insulation over a wide humidity range.



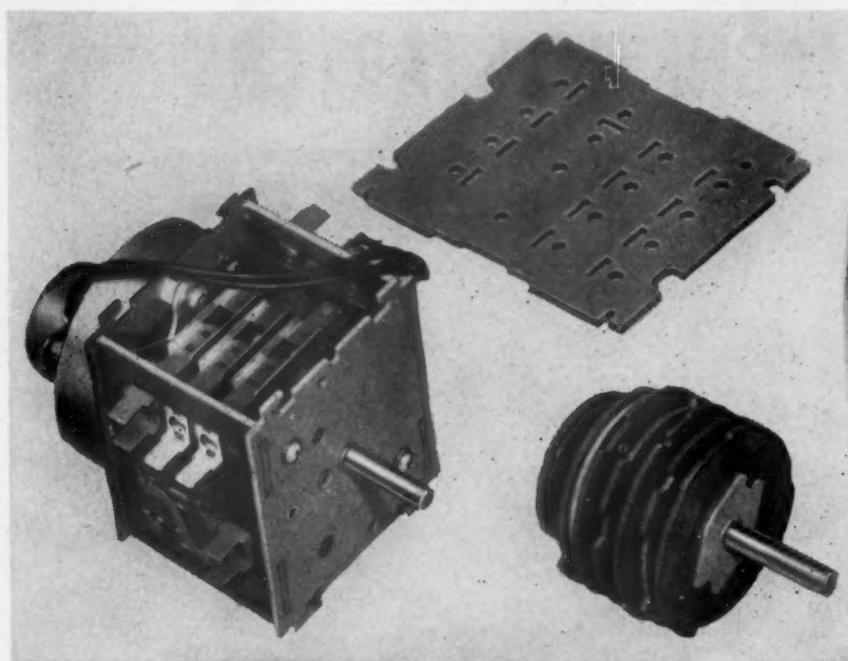
Welders' helmets are fabricated from tough durable Taylor vulcanized fibre . . . readily formed to many desired contours.



Base plate for high-voltage TV component, punched from Taylor canvas melamine laminate, has high dielectric strength and arc resistance.



Rollers for flush doors are now being made from Taylor paper base tubing with ball bearing insert . . . providing smooth, silent operation at a low cost.



Interval timer switches, made by P. R. Mallory & Co. Inc., use various grades of Taylor paper base phenol laminates for cams and terminal boards. These laminates provide electrical insulation, strength, dimensional stability.

Tough specifications? check Taylor phenol laminates

Choose from over 30 grades of Taylor phenol laminates, for the combination of electrical, physical, and machining properties you want. These rugged, versatile laminates can meet your most demanding specifications, improve end-product performance . . . and bring you major savings in material and fabrication costs.

These laminates, consisting of a paper, cotton fabric, asbestos, glass cloth or nylon base impregnated with Phenol resins, were developed to meet the need for dependable, moisture resistant insulation. They possess high dielectric and mechanical strength. Unaffected by heat or cold (except extremely high temperatures) they resist oils and most chemicals, and are especially suited to the punching and machining of accurately-sized parts. Because of their high moisture-resistance qualities,

Taylor phenol laminates will not readily warp or become distorted when subjected to alternating wet and dry conditions.

You'll like the way these laminates handle in the shop . . . how they punch and stake cleanly, how they readily machine to hairline tolerances. And you'll like the way they perform in product application, how they retain their original characteristics over long periods of time and under severe operating conditions.

Taylor offers the service of its field specialists to help you choose the grade of material that matches the exact requirements of your application. Check with Taylor now. Write for the general catalog of Taylor materials. And contact your nearest Taylor sales engineer for a discussion of your particular requirements.

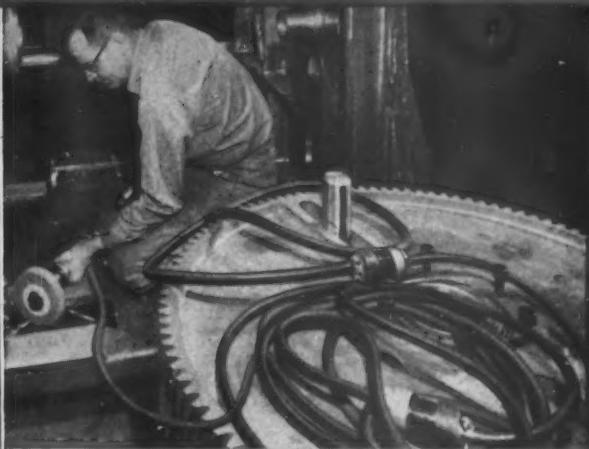
NEW TAYLOR COPPER-CLAD LAMINATES

Taylor GEC (glass-epoxy) Copper-Clad and Taylor XXXP-242 cold punching (paper-phenol) Copper-Clad. Taylor uses high purity rolled copper on base materials with outstanding electrical properties.

For More Information Circle No. 204 on Inquiry Card—Page 17



Laytex® Royal Master Electrical Cords



Portable grinder equipped with U.S. Laytex Royal Master Cord. Note that it must resist dragging over sharp metal edges... and its extreme flexibility.



Electric wrenches equipped with U.S. Laytex Royal Master Cords apply studs to bottom base of braider. Cords resist chemical action of oil, white lead.



Hand-drilling hole in a braider. Note the high flexibility of U.S. Laytex Royal Master Portable Cords in confined spaces.

"The answer
to a plant
electrician's
dream..." says a
leading maker of braiding
machines.

"Before June 1954, we were repairing and replacing the electrical cords on our portable electric drills, wrenches and grinders every six months," says the plant's chief electrician. "The cord jackets were easily bruised and weakened, or even cut. What with being dragged over the floor and around sharp intersections, any tape repairs didn't last long. Then, there were fire hazards and chances of blowout."

"When U.S. Laytex Royal Master Portable Cords were demonstrated to us, and installed, the problem was licked. The cords have a jacket that stands up under our most demanding conditions—and even though their internal wires,

insulators and separators are heavily reinforced, the cords still have high flexibility.

"Our men usually pick up the tools by grasping the cord as a handle. Standard cords pulled loose after a short time, because of inability to take constant flexing, and support weight of 15-25-pound tools. We've found that not one U.S. Laytex cord has pulled loose since installation."

U.S. Laytex Royal Master Cords are unquestionably the crowning achievement in portable cords, unsurpassed in performance and economy. Obtainable from your "U.S." branch, your distributor, or write us at Rockefeller Center, New York 20, N.Y.



Electrical Wire & Cable Department

United States Rubber

For More Information Circle No. 205 on Inquiry Card—Page 17



DESIGNED FOR FAST UNPACKING



Gaylord box designers have both shipper and receiver in mind... and often they can combine cost-savings for the shipper with time-savings for the receiver. For example, component parts can be shipped in exact ratio to their installation requirements, and the boxes placed right on the customer's assembly line.

Does this sales advantage suggest interesting possibilities to you? Call your nearby Gaylord office for any type of shipping container.

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES • KRAFT BAGS AND SACKS

GAYLORD CONTAINER CORPORATION • ST. LOUIS

DIVISION OF CROWN ZELLERBACH CORPORATION

For More Information Circle No. 206 on Inquiry Card—Page 17

Purchasing Shop Talk

WE have consistently avoided using in these pages the Washington idiom that refers to an office or department as a "shop"—and we don't propose to change that policy now. But there is just enough truth in this description of the purchasing office, and it is so pertinent to the theme of this issue, that the term seems to be in order here.

The business of a purchasing office is to produce orders, as the means of procuring materials, parts, and supplies. As in any production process, successful administration of a purchasing department means efficiency in producing the orders—speedily, accurately, and economically.

That's only part of the job, of course. It happens that purchasing involves two distinct aspects of cost. The cost of purchasing, at best—or at worst—is only a small fraction of the total cost of the items purchased. The opportunities for saving in product cost are larger and more dramatic than savings in paperwork. Nevertheless, the office operation is basic to purchasing, and it is inevitably reflected in product cost—directly in the individual purchase, and as a part of the general "burden" of doing business, that drags down company profits.

The purchasing agent who is obsessed with forms and procedures may be missing some of the larger opportunities. The man who has advanced far in his profession, concerned with policy-making, research, and long range supply negotiation, may be impatient with the work-a-day details of departmental operation. At the extremes of those attitudes, neither man is doing a complete purchasing job.

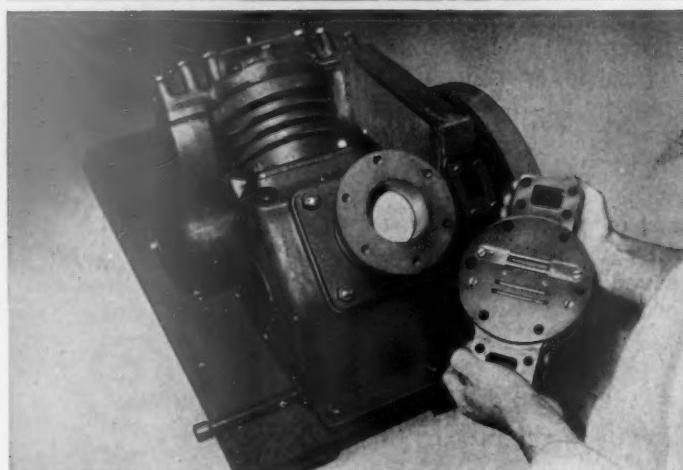
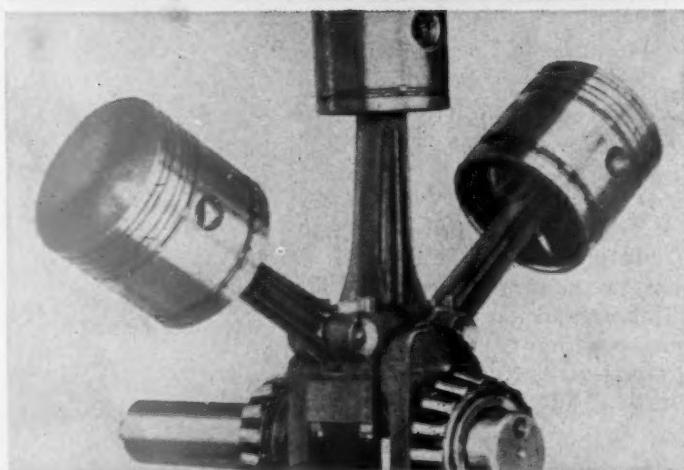
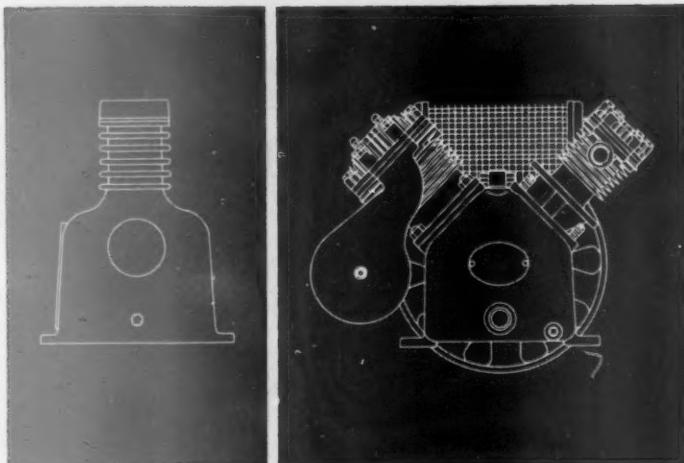
The dollar saved in the cost of purchasing, through better methods and procedures and more efficient equipment, is just as big, as important, and as repetitive as the dollar saved through value analysis, negotiation, and market exploration. There are many impressive instances to point up this phase of purchasing activity.

But efficient operation saves more than dollars. It saves time, duplication of effort, and valuable manpower. And these are the factors that make possible more effective attention to the cost of purchased materials and end-product costs. Efficient purchasing starts at the office level.

Stuart F. Henrutz

WHAT'S YOUR C.Q.?*

*COMPRESSOR QUOTIENT



In-line or V-type—which is more efficient? In certain fields, this is a hotly debated subject. In compressors, however, most authorities agree that the V-type design provides better balance, smoother running, and better cooling. Besides building only the more efficient V-type design, Worthington casts each cylinder separately from the crankcase. Air thus flows completely around the isolated cylinders, increasing efficiency and saving power dollars.

Why is this connecting rod "aerodynamically" sound? This articulated connecting rod design assures smooth effortless operation, less bearing wear and longer life. It's used in all Worthington radial compressors because it lowers crankpin bearing pressure. One large bearing carries peak connecting rod loads which occur at successive intervals. It's aerodynamically sound because the design is also used in all modern radial aircraft engines.

What important maintenance feature is he demonstrating? When a compressor is operating, valves open and close as many as thirty-three times a second. Valve maintenance is therefore of major concern to all users. Unlike many other makes which require replacement of the complete cylinder or head, all Worthington compressors are equipped with individually replaceable valves and valve guard seats. This is just one of the many Worthington features which save you time and money.

PC 6.3

To increase your C.Q., write today for the complete story on Worthington's line of standard compressors. Ask for bulletins H-630-B1 and H-605-B3C. Address Section PC63, Worthington Corporation, Harrison, N. J. In Canada: Worthington (Canada) 1955, Ltd., Toronto, Ont.

WORTHINGTON



BUY THESE WORTHINGTON STANDARD PRODUCTS FROM YOUR LOCAL DISTRIBUTOR

Air Compressors • Pumps • Multi-V-Drives • Allspeed Drives

For More Information Circle No. 207 on Inquiry Card—Page 17

OCTOBER 1956 PURCHASING

highlights



This month's issue features a special group of articles designed to help the purchasing agent improve the operations of his own office, and increase his service to other company offices. It is published in conjunction with the National Business Show, the office supply industry's annual exhibit of its newest and most advanced products and systems. From the general review of opportunities for **Better Buying of Office Supplies** and equipment (page 71) through the listings of new tools for the office on page 140, you'll find a wealth of ideas that will help you in an important but often neglected area of purchasing activity.

The day is far distant when any machine will replace the uniquely human property of judgment—so the really good P.A. has little to fear from the electronic tube. Machines, however, are taking a lot of drudgery out of the purchasing job in both large and small departments. The latest in **Automated Purchasing** is described in three revealing articles: Purchasing With Punched Tape (page 75); Inventory by Machine (page 96); and Intermediate Univac Solves Purchasing Problems (page 124).

Paperwork, a necessary ingredient in any purchasing department, is growing rapidly in many companies and in some cases is threatening to strangle the very organization it is supposed to serve. This month's Purchasing Opinion poll (page 85) and a follow-up article based on it (page 87) reveal the extent of the red tape problem, and what purchasing agents are doing to overcome it.

There are probably few purchasing departments that don't feel they need more **Office Space** to perform their

function properly. Unfortunately, office space is at a premium in most industrial areas. One answer to the problem of finding more room is to make more efficient use of what you have. A leading office decorator gives an example of how it can be done, on page 92. This is followed by a picture story on the layout of a purchasing department in Manhattan's newest skyscraper.

If your company is planning a move or an expansion one of the things you'll probably be asked for is comparative information on different kinds of **Office Furniture**. We asked authorities on the characteristics and capabilities of wood desks and metal desks to answer a set of basic questions on these products. Their answers, on page 100, will help you to come to a buying decision.



Buying for a company where the office is actually the firm's production line requires its own special techniques, as well as adaptation of standard industrial purchasing practices. How the purchasing department of one of the country's largest insurance companies handles not only the buying of office equipment and supplies but a number of other important related operations is detailed on page 111.

Other important aspects of the office buying job covered in this issue include **Standardization** (page 89); and **Check List For Forms** (page 120).

There's also plenty of information for purchasing men in these regular monthly departments: the Washington Report (page 13), New Catalog listings (page 17), New Equipment and Products (page 172), News of Your Suppliers (page 22), Association Activities (page 244), and Men in Purchasing (page 302).

next
month:

Management by Committee—Purchasing for a Growth Company—
Small Order Procedures—Getting Bids in a Hurry



Do you really know the alloys you buy?

For instance, are you SURE of:

- **Heat identification** . . . not just type identification but the positive identification of your particular heat so you can be sure the alloy steel is everything it is supposed to be?
- **Chemical analysis** . . . not just the chemical range for the type, but the specific analysis of the heat from which your steel was rolled?
- **Hardenability** . . . not just the average hardenability for the type of alloy, but the actual test-proved hardenability of your particular heat of steel?

If you don't know these important facts, you may be in for trouble—loss of time and money; breakdown of equipment. It can happen when you're not sure of your alloys.

But when you work with Ryerson alloys you *can* be sure—sure of the steel you get, sure of what it will do—because Ryerson alloys are certified by an 8-step quality control program.

Every step has a specific purpose—every step is designed for your protection, but doesn't cost you a dime. For alloys with all questions answered, call your nearby Ryerson plant.

RYERSON STEEL

PRINCIPAL PRODUCTS

CARBON STEEL BARS—Hot rolled & cold finished

ALLOYS—Hot rolled, cold finished, heat treated

STAINLESS—Allegheny bars, plates, sheets, tubes, etc.

TUBING—Seamless & welded, mechanical & boiler tubes

STRUCTURALS—Channels, angles, beams, etc.

PLATES—Many types including Inland 4-Way Safety Plate

SHEETS—Hot & cold rolled, many types & coatings

MACHINERY & TOOLS—for metal fabrication

For More Information Circle No. 208 on Inquiry Card—Page 17

October, 1956



Better Tools for a Bigger Buying Job

HERE IS a dual interest, and a dual opportunity, for purchasing in today's advances in office equipment and supplies. The industry's progress in developing new products and systems that simplify and mechanize office routines—dramatized by the National Business Show in New York this month—commands the purchasing agent's attention on two counts.

First, the office is, in a very special sense, the purchasing agent's own specialized production line. As the mechanical part of the buying function, it has to be run as efficiently and economically as any manufacturing operation to provide the purchasing agent with more time to exercise his judgment and negotiating skill. In short, a well run office is the first step toward more creative buying.

Second, industry's investment in the office in general is bounding upward. Today, about one out of every seven workers is engaged in administrative or clerical activity. Management is demanding more information and is putting more emphasis on statistical controls. But unless it establishes good regulation of the controls themselves, a modern company may find its profit position menaced by a flood of paperwork and an army of costly clerical help. Improved techniques in the factory must be matched by low-cost, high-production methods in the office.

To help his company meet this challenge, the purchasing agent has the opportunity—and the obligation—to apply the same principles of analytical, creative buying to purchasing for the office that he does to purchasing of production equipment and materials. In proportion to the money spent, he has just as many chances for substantial cost reduction in buying for the office as he has in any other type of purchase.



How can the purchasing agent exploit this potential for improved performance and increased profit? In what ways can he promote more efficient operation of his own office and apply the principles of value buying to the needs of every other office in his company?

The approaches he can use may be classified into four general categories: (1) careful organization of departmental activities; (2) improvement and simplification of basic procedures; (3) mechanization or automation of repetitive operations; (4) application of value buying techniques to the purchase of office equipment and supplies.

Organize Your Department

UNLIKE the manufacturing end of a business, purchasing deals primarily in intangibles. It accomplishes the major portion of its work through sound reasoning, analysis, and skillful negotiation. Yet it must have physical facilities to work in and tools to work with. The office is the P.A.'s production line and office equipment and forms are his machines and tools.

Analysis of office operations should begin with the physical layout. Does the department have enough room in which to function, or is it failing to take advantage of adequate space through improper placement of desks, file cabinets, etc.? Have plans been made to provide for expansion where company growth seems to warrant it? It's easy enough to blame lack of space on failure of management to provide greater working area. But too often poor planning on the part of the department head leads to improper utilization of what room is available.

The direction and volume of the flow of paperwork through a purchasing department should be the next area of study. Most purchasing departments have seen the volume of their work rise steadily in the postwar years. This month's Purchasing Opinion Poll indicates that many of them have been able to handle this increased load with no additional personnel, not only through the use of machines, but by trimming down the number of forms and records used, and making essential forms do more work.

Good form design has become almost a science, and there are numerous vendors ready to offer you the services of forms experts. A little greater investment in a more expensive form may bring impressive savings through reduction of typing and other clerical operations. The use of duplicating masters in purchase order forms, the great progress in multiple



part snap-out forms, and the refinement of the traveling requisition are just a few of the developments that are increasing the efficiency and reducing the costs of modern purchasing offices.

EVEN the ordinary day-to-day procedures in any department, which cannot be glamorized by new design or new equipment, are subject to improvement. Too often, for example, catalogs are simply received and stuffed into a bookcase with a few fainthearted attempts to keep them in any order. Properly maintained and used, however, a catalog file can not only save the purchasing agent time and money, but it will add to his prestige in the company. Helpful advice on organizing a complete and up-to-date catalog library that can be used by all departments is given in an article in this issue.

Filing is another basic operation over which many purchasing people go to extremes. A careful, systematic approach to the maintenance and retention of records will prevent the purchasing agent from either drowning himself in red tape, or trying to struggle along in administrative chaos.

A great help in establishing orderly procedures for routine but important tasks is the manual. Complete instructions, carefully and simply spelled out assure uniformity of operation and make it easier to break in untrained personnel. This in turn frees supervisors from interruptions that may be costly, and are always irritating and time-consuming.

THE excitement over automation in the factory has obscured the fact that similar advances began taking place in the office several years ago. Today, electric and electronic units are saving countless thousands of manhours in offices of every size.

Machines are helping not only to lessen the burden of routine purchasing work, but are enabling the purchasing agent to broaden the scope of his job. Mathematical determination of proper ordering quantities and inventory levels, statistical quality control, and rating of vendors has moved from the realm of the academic to the thoroughly practical.

Purchasing agents who either fear or denounce the trend toward automation in the office unconsciously reveal chinks in their own armor. Machines are here to stay—not to replace the intelligent, creative individual, but to work for him. The

Improve Your Basic Procedures

Mechanize Wherever Possible



purchasing man who knows how to put scientific methods to work for him widens his own opportunities for greater contributions to company progress and profit. The machines then become the "order clerks"—and the purchasing agent takes his true role as executive and decision maker.

Remember, too, that mechanization is not only for the bigger firm. Small firms are already automating paperwork with such techniques as Automated or Integrated Data Processing. An article in this issue describes the successful application of such a system in a department which spends approximately \$6,000,000 a year.

Apply Value Buying to the Office

VALUE analysis as a technique for bringing down the cost of manufactured parts and components has produced the type of dramatic savings not always possible in the procurement of office supplies and equipment. Cost-cutting changes in materials or manufacturing processes are more easily made on items bought by the hundreds of thousands than they are on desks, typewriters, or writing instruments, for example.

There are some opportunities for applying basic value analysis to such high volume purchases as paper forms. The quality of the paper, economical trimming methods, types of packaging—these are just a few of the things that lend themselves to profitable analysis on this type of commodity.

Yet it is value buying in its broader sense that can bring about impressive savings in office buying, in proportion to the amount of money expended on it. Here are just a few of the areas in which closer analysis of value will pay off: standardization of equipment and supplies; more efficient utilization of existing equipment (e.g. exploitation of full potential of expensive calculating machines); "make-or-buy" studies (e.g., determination of whether printing should be done within the company or on the outside); repair and salvage of damaged or obsolete equipment; good inventory control of supplies, including use of yearly orders and agreements with vendors for storing forms.

The purchasing agent simply cannot afford to overlook or minimize the importance of operating his office in the most efficient and economical way. Further, he has a duty to assist the rest of the company to do the same, through his intelligent purchases of the right kind of equipment and supplies. In the following pages are specific examples of how purchasing agents, in large and small companies, are doing those very things. Following the articles is a review of the latest equipment available from the office supply industry—an additional set of "better tools to do a bigger buying job."



Purchasing with Punched Tape

Purchasing with punched tape starts with a traveling requisition just like most purchasing procedures. Only difference is the requisition is an envelope rather than a card; in it is stored the tape.

WHAT MAY well be a revolution in purchasing procedures has quietly taken place at Joy Manufacturing's relatively small (450 employees) New Philadelphia, Ohio plant. Quotation requests, purchase orders, receiving reports, back orders for partial shipments, and replacement orders for rejected materials are being almost completely typed automatically from information on punched tape. According to Joy's purchasing agent, Dwight L. Bargar, the new set up "has eliminated the need for an additional clerk and substantially increased over-all department efficiency." This was achieved, Mr. Bargar reports, for a capital investment of "less than \$3,000."

QUOTATION REQUEST: Either the tape that is kept in the requisition or one that is filed with a previous quotation is used to type the 3-part quotation request form.

PURCHASE ORDER RECEIVING REPORT: The tape that was cut when the quotation request was made out is used to type the nine-part combination receiving report and purchase order form.

Joy has achieved semi-automated order writing by investing in just one piece of equipment—a Commercial Controls “Flexowriter” equipped with a “Registrator Platen” and a “Pack Holder and Refold Tray” made by Standard Register. The only additional expense was a supply of specially designed pin-feed forms. Thus, Joy has eliminated probably 80% of the manual typing necessary for preparation of purchasing documents at relatively little cost.

Though he enthusiastically recommends his punched tape system for departments that have less volume than his own Mr. Bargar points out that those with a very heavy purchase order volume would enjoy correspondingly greater benefits. Joy's purchasing department probably has an aver-

age amount of paperwork for a small plant that is mostly in the heavy equipment business. The New Philadelphia plant makes belt conveying equipment and a wide line of fans and blowers. Purchasing buys about 17,000 different items and issues about 11,000 purchase orders annually.

Basic Practices Unchanged

Thus, the purchasing operation at Joy's New Philadelphia plant is by no means a big one. Automated order writing (it's called "IDP" or Integrated Data Processing by most manufacturers in the field) would be impractical if elaborate procedures were required. Fortunately, with IDP, no changes in basic buying practices are needed; at Joy they're fundamentally no different from what

they were before the machine was bought. Forms have been re-designed to fit the machine, clerical work has been eliminated, but the buyer (not the machine) still makes the basic purchasing decisions.

As it did in the past, the purchasing cycle under Joy's new set-up starts with a traveling requisition. This form is made up for the first buy. Like other traveling requisitions, it then "travels" back and forth between purchasing and the requisitioner. On the outside, at least, it closely resembles the traveling requisition forms used by many other companies. There's just one difference. Joy's traveling requisition is an envelope—not a card form.

In the envelope is kept a punched tape which is used to type the

ORIGINAL

JOY MANUFACTURING COMPANY
MACHINERY FOR THE BASIC INDUSTRIES
338 SOUTH BROADWAY - NEW PHILADELPHIA, OHIO

PURCHASE ORDER

NET **F.O.B.** **SHIPPING PT.**

A. AND B. COMPANY
310 WATER STREET
NEW PHILADELPHIA
OHIO

RECEIVED THIS DAY OF **1956** FROM **JOY MANUFACTURING COMPANY**

SPECIAL INSTRUCTIONS:

QUANTITY	UNIT	JOY PART NUMBER	DESCRIPTION	ACCOUNT NO.	UNIT PRICE	TOTAL
1	EA	90997	SHAFT PER ATTACHED DWG 90997 REV 667		50	
			OUR REQ. P-4615			
NOT SUBJECT TO NEGOTIATION ACT OF 1951						
2130 61 91						
THE ABOVE MATERIAL WAS RECEIVED ON P.O. NA-2910. HAS BEEN REJECTED AS NOT TO PRINT. BEING RETURNED ON SHIPPING NOTICE NUMBER 150-202.						
INSTRUCTIONS TO VENDOR						
1. PLEASE TYPE EACH ORDER SEPARATELY AND IN TRIPPLICATE ON DAY OF RECEIPT. 2. THE COMPLETE PURCHASE ORDER NUMBER, INCLUDES SHIP TO AND SHIP FROM LOCATIONS, QUANTITY, DESCRIPTION, SHIPPING PAPERS, AND MATERIAL CODE TAGS. 3. MY PART NUMBER Y SHOULD BE SHIPPED AS IS SHIPPED OR ALL ITEMS SHIPPED Y SHOULD BE SHIPPED AS IS SHIPPED OR 4. SHIP AIR AMMUNITION IF ORDERED. SHIP COMPLETE. 5. THIS PURCHASE ORDER MUST BE ACKNOWLEDGED BY COMPLETING AND SIGNING AIR COMPRESSORS • ROCK DRILLS • CORE DRILLS • HOISTS • FANS • BLOWERS • OXYGEN GENERATORS • OIL FIELD DRILLS • ELECTRICAL CONNECTORS AND EQUIPMENT AND A COMPLETE LINE OF EQUIPMENT FOR MINES, TUNNELS, QUARRIES AND THE CONSTRUCTION INDUSTRY						

STATE SALES OR USE TAX
TAXABLE **EXEMPT** **TOTAL** \$ 500

BUYER **DWIGHT L. BARGAR** **FOR** **JOY MANUFACTURING CO.**
REMARKS

FORM NO. P-136

JOY MANUFACTURING COMPANY
MACHINERY FOR THE BASIC INDUSTRIES
338 SOUTH BROADWAY - NEW PHILADELPHIA, OHIO

SHIPPING NOTICE

DATE **6-24-56** **RECEIVED DATE** **NA-3000 062456**

VENDOR CODE **6678** **NOTICE NO.** **150-202**

NOTE: Do not replace or ship any material unless a Purchase Order is issued to cover such material.

ITEM	QUANTITY	JOY PART NUMBER	DESCRIPTION	ACCOUNT NO.	UNIT PRICE	TOTAL
	1	EA	90997	SHAFT PER ATTACHED DWG. 90997 REV. 667.	50	
			OUR REQ. P-4615			
NOT SUBJECT TO NEGOTIATION ACT OF 1951.						
2130 61 91						
THE ABOVE MATERIAL WAS RECEIVED ON P.O. NA-2910. HAS BEEN REJECTED AS NOT TO PRINT. BEING RETURNED ON SHIPPING NOTICE NUMBER 150-202						
TOTAL \$ 50						

PAGE **1** **OF** **PAGES**

BUYER **DWIGHT L. BARGAR** **FOR** **JOY MANUFACTURING CO.**

REMARKS

SHIPPING NOTICE

SHIPPING NOTICE: When rejected material is returned to the vendor, the tape that was cut when the back order was typed is used to type out a five-part shipping notice form.

BACK ORDER: When material is rejected, purchasing takes the tape that was cut when the purchase was typed and uses it to type a second order calling for replacement of the rejected stock.

quotation request. The tape was generated when a previous order was placed with the vendor being queried. The operator feeds the tape into the machine and, from that point on, most of the basic information that goes on the quotation request is put in automatically by the machine. During the life of the part, it's only necessary to type one quotation request manually—the first one. Every succeeding stage in the purchasing cycle and every subsequent buy of the same item is at least partially automated. When the operator types the first quotation request manually on the Flexowriter, the Flexowriter cuts the coded punched tape that can be used for subsequent quotation requests or purchase orders.

For example, if the buyer wants

to get a quote from more than one source, the operator can use the tape that has been cut to help make up additional quotation requests. In this case, manual typing is necessary for the vendor's name, his code number, the inquiry number, date, and quantity. The rest of the job is done automatically at the rate of 600 characters per minute. But even the manual phase is done much more rapidly than would be possible with a conventional electric typewriter. The machine automatically advances the proper number of spaces and lines on the form so all the operator has to do is type in the basic information.

Two copies of the three-part quotation request go to the vendor; one he keeps and the other he returns to the buyer. One copy of

the request is retained by the buyer for follow-up. With it, he keeps the tape that was cut when the form was typed. The tapes for unsuccessful bidders is filed with the quotation. When used for future buys, they permit a quotation request to be made up with almost no manual typing.

After the buyer decides upon source for an order, he fills in the requisition and puts the successful bidder's tape into the envelope.

Issuing the Order

The tape stays in the envelope until the order is actually typed. Joy uses a nine-part combination purchase order and receiving report. The purchase order part of the form has a vendor's copy, an acknowledgment copy, a purchasing department copy, an ac-



Joy's key purchasing personnel meet frequently. Shown here are, left to right: Ralph Lehman, Robert Morgan, Purchasing Agent Dwight Bargar, Assistant Purchasing Agent Max Waddington, and Bob Avon.

counting copy, and an expediting copy. The receiving report part has an accounting copy, material control-stock records copy, an inspection-with goods copy, and purchasing copy. The layout of this form closely resembles the quotation request; basic information is typed in exactly the same areas. This makes it possible to use the tape that was cut when the quotation request was made up for typing the purchase order. The only information the typist need normally put in manually are the dates of the order and requested delivery, the order number, the quantity, and the price.

After the order is typed, the tape that was used to type it is returned to the requisition envelope. The envelope is then returned to the requisitioner until there's need for a repeat buy. At that time, it can be pulled from the envelope and used to make up another quotation request (or a purchase order, if it is decided not to get quotations for the repeat buy).

Handling Partial Receipts

While the purchase order is being typed, a second tape is automatically cut. It goes into an envelope attached to the expediting copy of the order and has a number of uses. When there's a partial shipment, it's to run off another

copy of the receiving report. Purchasing can easily do this between 3:30 and 5:00 pm when the receiving clerk has gone home. That way he's never without a copy of the order.

Returns to Suppliers

The tape is also useful for processing rejected material. In this case, it's used to run off a new purchase order calling for replacement of the rejected items with a new shipment. This order is exactly the same as the original one except for the quantity and a note indicating that it is for replacement. This information along with the date and order number is typed in manually. The rest of the job is done automatically.

If the rejected material is to be returned to the supplier, purchasing makes out the five-part shipping notice form. Distribution is made to the vendor, the shipping department, purchasing, and material control, and one copy becomes a packing slip. Since the information on the shipping notice is identical with that on the replacement order, the only manual typing necessary is to enter the date and the shipping notice number. The rest of the job is done automatically with the tape that was cut when the replacement order was typed.



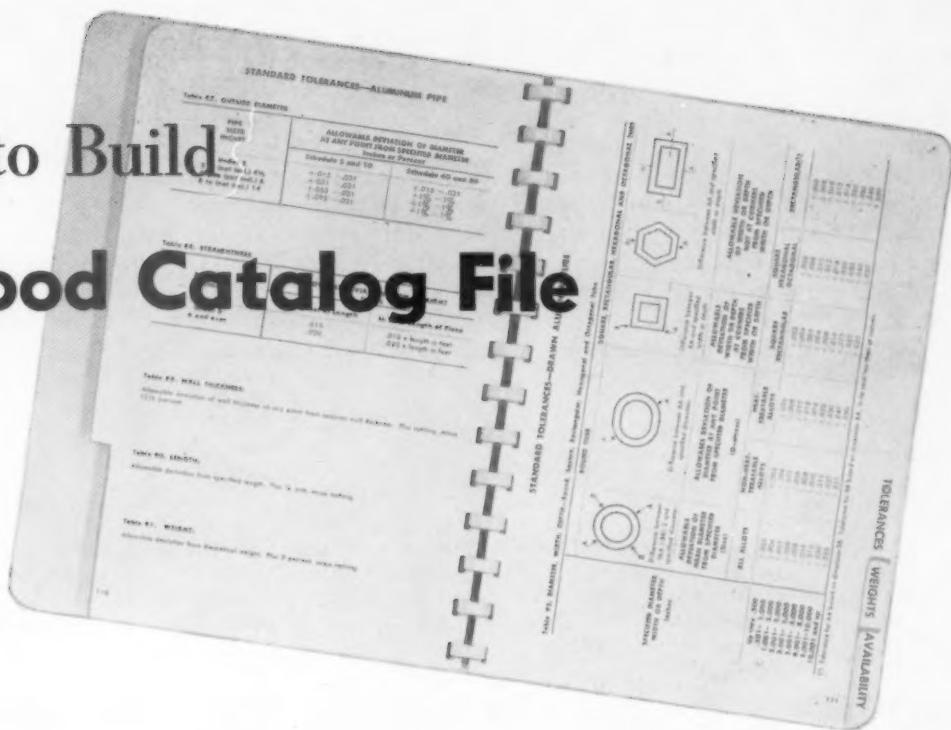
Only the information unique to a particular form must be typed in manually with the Flexowriter. The common information is coded on a punched tape and is typed automatically at the rate of 600 characters per minute.

Besides speeding up typing, Joy's system permits faster handling and distribution of the various forms typed with Flexowriter. The continuous type, pin-feed forms that are used feed into a pack holder and re-fold tray which separates and folds them. For example all four of the receiving report copies of the order, the vendor's copy and the acknowledgment copy, and the other copies wind up in three separate piles. It's not necessary to manually separate them for distribution. Even the carbon paper is removed with the device.

Operations Scheduled

Because it uses continuous type forms, purchasing schedules various types of forms to be typed in batches. That is, the typist might work on quotation requests for a half-hour or so, then she might run off her backlog of purchase orders, etc. The machine is fast enough to keep backlogs at a minimum. In fact, purchase orders are almost always mailed the same day the buyer approves them for typing. There's plenty of reserve capacity in the system. According to Mr. Bargar, even if the department's activities expanded considerably, it wouldn't be necessary to buy a second machine for purchasing's use.

How to Build A Good Catalog File



Is your catalog file a collection of out-of-date odds and ends? Here's how you can organize it to help you do a better job.

A good catalog file can be one of the best tools of a purchasing department. There are few, if any, purchasing departments that do not make some use of catalogs. The advantages the catalogs provide are in direct proportion to how efficiently they are kept and used.

To be of any value, the catalog file must be current and up-to-date. It then becomes a handy reference to sources for materials, products and supplies that are required. A good catalog file helps in quick, accurate and complete writing of purchase orders. Additionally, it provides specific, detailed product information which would otherwise be available only

from the vendor's salesman. This type of data is particularly helpful for sudden conferences with plant personnel.

Sizes and types of files vary widely, depending on the size and nature of company using them. Although it is common for small departments to have a single file for use of all buyers, there are many large departments that follow the same practice. The files are separately maintained and used by everyone in the department.

Specialized commodity buyers often maintain their own catalog file—limited to the products in which they are interested. In firms with large and widely scattered

departments, it is often the custom for engineering and plant personnel to keep their own catalog files.

Whatever your arrangement, there are certain definite principles of filing that you can follow to get the maximum benefit from the catalogs available to you.

What To Put in the File

Your file should have only the very latest and best catalogs. Don't include every catalog or pamphlet you receive. By using reasonable discretion in the selection of material, you can avoid accumulation of catalogs on the dubious basis that "they might come in handy sometime." Catalogs covering materials or prod-

ucts not currently being purchased take up space and are generally obsolete by the time you get around to using them.

A New England manufacturer says this about getting help to keep catalog files up-to-date. "The thought occurs to me that it might be a good thing for sales representatives, when calling on their customers, to question them regarding the catalog file. I think they should ask specifically to see what catalogs of theirs you have in your file—whether they are up to date or not. Or, of course, the question could come with equal propriety and effectiveness from the buyer; we're both interested.

In this way, by spending an extra minute or two with each salesman who calls on you, catalog information will always be kept up to date."

Others have found the reader service card, available in most business papers, to be a handy way to keep up with and acquire the very latest in catalogs.

How to Arrange the File

All good catalog systems should have three main parts: (1) the core of the system, or the hard cover, looseleaf catalog; (2) the supplementary information, the pamphlets and booklets which are not part of the main catalog; and

(3) the buying guides, directories, reference books and catalogs from industrial distributors.

A small midwestern manufacturer has a catalog system which is practically self-operating. Two bookcases, with sliding doors, are used to house the catalogs and directories. Supplementary pamphlets and booklets are kept in two drawers of a regular letter-size file cabinet.

The key to its successful use is a small two-drawer 3x5 card file. The first drawer lists each catalog, indexed under a specific commodity. Some of the headings are as follows: abrasive and grinding, electrical relay, metal-working

A well-kept central catalog library will help broaden the service and enhance the prestige of the purchasing department, regardless of the size of the company. These catalogs, filed alphabetically in the office of Joseph Navas, purchasing agent for Hammel-Dahl, Inc., Providence, R. I., may be checked out by members of the engineering department.



equipment, steel and welding. The second set of 3x5 cards are kept alphabetically under the name of the supplier. Each of the supplier cards has the list of commodities covered by the catalog.

Each individual catalog has a permanent identification number. Up-to-date catalogs are given the same number as the catalog to be replaced. The only thing remaining to be done, after the number is assigned, is to change the date appearing on the index card.

When a new catalog is added to the file, the next consecutive number available is assigned and the cards for the index file are typed. Once this system is set up, it will work with a minimum amount of time.

Supplementary data sheets and pamphlets, as mentioned previously, are filed in two regular file cabinet drawers. Indexing follows the commodity index in the 3x5 card file, with a separate file folder for each commodity.

A system of this type works just as effectively for medium-sized departments that desire a centralized catalog file.

The inclusion of a price list is another phase of catalogs that make them so valuable. It is not necessary to go into the advantages of keeping a price list up-to-date because they are so obvious. However, there is one note of caution about using published price lists. Regardless of how current they appear to be, care should be taken to use them as an accurate guide to the cost—not a positive commitment.

A Central Catalog Library

If a department is large enough it should consider the establishment of a central catalog library, which will not only serve a useful purpose, but will enhance the prestige of the entire department. Here, it has been found important to have one full time person, or at least a person whose primary function is the maintenance of the library. In this way, catalogs and other data can be loaned or released to various individuals within the company with the assurance that they will be returned. Otherwise, the file will be depleted faster than it can be built up.

With a library arrangement, each buyer has a few catalogs that he prefers to keep within easy reach. A second copy of each of these must also be retained in the central library so that others may make use of them. Individual buyers should not keep too many catalogs for their personal use or you end up with a duplicate file, which is wasteful—both from a viewpoint of the supplier and from your own viewpoint of wasted effort and wasted space.

A file of this type can use an indexing system which gives a much broader breakdown than you might ordinarily wish to have for a small file. One system currently in use is a book catalog index. Catalogs are numbered consecutively with a commodity identification letter. In other words, all catalogs are filed under their respective commodities, and cross-indexed, where necessary, by file identification letter. The following explanation shows the relative simplicity of the index. Fans, for example, would be indexed under Commodity F-1, individual catalogs bearing number in rotation. For instance, Emerson Electric Mfg. Co. catalog would be indexed as F-1.1, Graybar Electric Co. catalog would be indexed and numbered F-1.2. Fibers may be the subject of the next catalog in the "F" class, and would bear the key number F-2, with the names of various fiber manufacturers being numbered in sequence as F-2.1, F-2.2, F-2.3 and so on. Files might be Commodity F-3 classifi-

cation, Funnel Commodity F-4 and so on. This easily maintained catalog file has proved adequate, cross-indexing being applied where catalogs cover a variety of products.

What About Indexing?

It should be noted here that a number of scientific methods of classification have been developed, corresponding in principle to the decimal systems employed in general library practice. All of these doubtless have special merits of their own. But in the average purchasing department, the most useful index will follow the classification and sequence used in the listing of materials in the purchasing record, since reference will, in most cases, be prompted after consultation with the purchase record. It is, of course, important that all records within the department be coordinated.

There are many variations of these systems and one can easily be devised which will fit your particular problems. However, whatever system or method you decide to use, be sure to give adequate thought and consideration to the following:

- Determine what type of catalog file is best suited to your purposes; central library, specialized catalog file for each buyer only, file for use of purchasing department only, or a combination of two or more of these.

- Be sure to keep your file up-to-date. Eliminate all deadwood and unnecessary literature—catalogs which you do not reasonably expect to refer to in the very near future.

- When requesting catalogs at the suggestion of plant personnel, always ask for two copies. In this way, if it should contain information which you may find of value, a copy will be available for your own file.

- If you use a central file, be certain that each buyer or purchasing agent places a copy of all valuable bulletins and catalogs in the central file.

- Make it known to your suppliers that you are anxious to keep a current catalog file and they will be more than willing to see that you have all latest literature.



"Our gear buyer is a creative thinker!"

The Right Record

When You Need It



Cumbersome methods of handling the paperwork of a purchasing department can cause costly delays and general inefficiency. Here are suggestions for streamlining your filing system so that essential records are right at hand when needed.

FILES are merely an extension of man's memory. They take many forms. Some are no more than a stack of papers on a desk, with the missing or desired paper, "in this pile somewhere." Others are extremely complex, having innumerable guides, tabs, colored separators, colored signals and the like. In addition, they may be supervised by an expert in filing methods.

Somewhere between these two extremes lie the filing systems of most purchasing departments. They generally fulfill immediate needs but most can be improved to provide greater efficiency. The effort for this improvement is negligible when compared to the ultimate gain.

In evaluating a filing system, first go over the general principles that are applicable to all departments, whether purchasing, accounting, engi-

neering or any other. There are many ways to handle the job efficiently, but each system must be designed to coordinate all procedures in the department.

After a review of the general principles, the way is then clear for an analysis of the forms unique to purchasing—requisitions, quotations, purchase orders, purchase record cards, acknowledgments and change notices.

Some General Principles

Think of them as a helpful tool and they begin to take their proper place in the day to day operations of the department. The only contact some people have with files is to request that certain papers be put in or taken out. This is as it should be. Allowing unauthorized personnel to take ma-

terial from or put material into a file is one of the easiest ways to render it useless.

The first step necessary in the maintenance of a good filing system is to put in writing each of the policies as they are now known. This may indicate that only a basic filing system is available. "Such-and-such should be filed in alphabetic order," and that's all. The real standards, standards that make a useful filing system are missing.

Even if the present system is adequate, it is wise to review it again with the thought of improving and making it do more work.

One of the most common failings is the filing of too many papers. Determine the importance of documents and the value obtained in filing them to see how many can be eliminated. This is, admittedly, a difficult task. There will always be the inveterate "string savers" who insist on retaining every scrap of paper written or received in the office.

The statute of limitations of various states require that certain papers be retained for specified and varying lengths of time. The volume of these alone taxes the limits of most file systems. Add the amount of unnecessary papers and there is a tremendous waste of space, time and energy—readily translated into dollars.

The reasons for keeping them will be evident, if there are any. Write these reasons down as they can be extremely helpful later in determining the method to be used in filing.

Above all, do not accept such reasons as: "We

have always kept them." "They may come in handy sometime." "We couldn't do without them." Instead, look for constructive and concrete reasons that actually detail the use to which the document is put. All papers that are filed must have an ultimate use in order to warrant retention, except, of course, those kept by legal necessity.

However, since a person cannot remember everything that can be contained in a file and certain records must be kept for future use, it is imperative that the best methods be used.

Lack of uniformity in the system can create serious trouble, frustration and many mistakes. Is McWilliams Mfg. Co. filed in regular alphabetical order in front of Meacham Corp., or is it given a special place in front of the first name in the M's? Both schools of thought are prepared to argue their case. Actually, it doesn't really matter which one is used, as long as one is used consistently.

There are an untold number of choices of this type, in setting up or improving a file. If you have no preference, be arbitrary—select one method and stick to it.

However, it isn't necessary to give every detail. Save that for those responsible for maintaining the file. In either case, all new personnel are immediately aware of the company's personal filing preferences and will adapt themselves accordingly.

The alphabet is the basis of each filing method.

Quick Guide to Proper Filing

The methods are commonly referred to as: 1.) name; 2.) classification; 3.) alpha-numerical; and 4.) chronological. The one used will depend to a large extent on the type of forms employed in the department. It is a rare system that employs only one. Practically all incorporate two or more to permit flexibility and adequate breakdowns or divisions.

Specific Applications

Requisitions—Since traveling requisitions are invariably filed or maintained in the requisitioning or using department they will not be considered here.

It is not essential to attach the requisition to the purchase order for permanent filing. When the requisition is filed separately, it is most often filed by plant or department. Within each plant or department file, the requisitions are ordinarily arranged by requisition number or part name. Keeping them in a separate file allows the purchasing department to analyze requisitions to determine previous experience or purchases of a particular part within one department or plant.

The advantages can be increased by having some of the file in requisition number order and some by part name. When filing according to requisition number, the requisitions automatically fall into chronological order, thereby, eliminating the problem of disposal. At the end of a certain length of time it is very easy to destroy the oldest group and never have requisitions on hand for longer than a prescribed period. Keep important requisitions, such as capital equipment items, by part name and it is possible to retain them for a longer period than the normal everyday requisitions—with no added effort.

Quotations—Requests for quotations being held awaiting reply should be filed by a method which permits ease of follow-up, or a method which allows a constant check on critical materials. Since the quotation from the successful bidder represents a binding contract (when accepted) this document is retained with the purchase order. It is acceptable to destroy quotations from unsuccessful bidders as there is no further need for them. Oftentimes, however, purchasing managers retain unsuccessful quotations until the successful bidder has fulfilled his contract or purchase order. This assures a second supplier in the event of a possible emergency.

If a history of all bids is desired, a summary quotation sheet is most advantageous. Quotations for a particular part or commodity, successful or unsuccessful, are posted to this record. The copies of a request for quotation, retained while awaiting reply, are no longer of any value and should be destroyed to free valuable space.

Purchase Orders—Before deciding how to best file the purchase orders, first determine how many copies are needed. Keep them to a mini-

mum. One way is to use the follow-up copy as a final copy after the order is closed. This will mean one less to produce and one less to handle.

When more than one copy of the purchase order is kept in the department, it is common for each of them to be filed in a different manner. This permits easy cross-referencing from one to the other, regardless of how it is referred to the first time. One copy, which can be called the master, is filed alphabetically by vendor; another by order number. Used for follow-up, the latter can be retained as the permanent closed order copy. Closed orders are best kept in a binder in order to give greatest flexibility of use.

Most common method of filing purchase orders is by vendor. However, many successful purchasing agents file by part name or number, or commodity number. Usually, this is done in large departments with thousands of orders being processed each month.

Those filing purchase orders alphabetically by vendor generally use a tab system to denote follow-up date. All pertinent material regarding delays etc. are then kept in one folder, handy for quick reference.

Purchase Record Card—Whether a card or sheet is used determines only how the record is kept physically, and has no bearing on the filing method.

More often than not, the purchase record card is kept in alphabetical order by name of product. The only instances when this does not hold true are in the very large departments where all items are kept by number, either part or commodity.

Acknowledgments—These are of little value after an order is closed. While the order is in process, acknowledgments should be kept with the follow-up copy.

Change Notices—Supplements to the purchase order would, of course be filed with the original purchase order and be handled in exactly the same manner.

Fix Responsibility

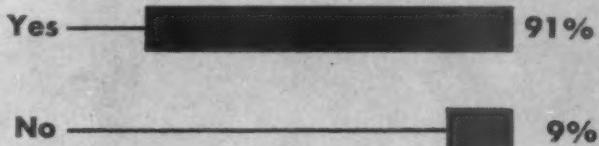
One of the most important features of any good filing system is the responsibility of its maintenance. Give it to one or more specific persons and adequate control is assured. If everything that's necessary has been done—nothing has been done—unless the correct equipment is provided. This does not mean that a great deal of money must be spent for an elaborate set up. Just make sure that the file drawers slide easily, a small table is located near the files, and such other inexpensive equipment as may be required is available.

In going over files keep in mind that there are three basic types: 1.) temporary, 2.) current and 3.) indefinite. If properly categorized there will be no difficulty in determining the length of time a paper should be kept if at all.

Too Much PAPERWORK IN PURCHASING?

The work of most purchasing agents is growing in volume and complexity. Since good buying must be backed up by proper use and maintenance of basic forms and records, the purchasing agent is faced with a problem in performing essential paperwork without letting it overwhelm him. We asked a cross section of purchasing executives in all types of industry what they consider the chief obstacles to the control of paperwork, and what steps are being taken to overcome them.

The percentage answers to our questions are listed below. The response to our request for information was so great, however, that the usual "What They Say" section has been expanded into a full-length article which follows immediately on page 87.



1. Has the volume of paperwork in your department increased during the past five years, and if so, by approximately what percentage?

The typical increase in paperwork is approximately 25%. A fifth of the respondents reported increases of 10% or less. Another fifth reported increases of over 50%.

2. Has this increase been caused by the normal growth of your business or by the growing complexity of records requirements?

Normal business growth . . .



Records complexity



Both



PURCHASING OPINION

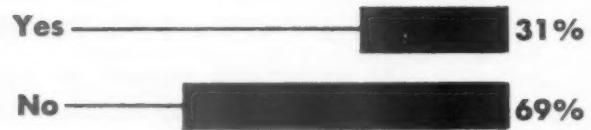
3. Have you been able to get management approval for sufficient expansion of your clerical staff to meet this increase?



4. Is there a shortage of competent clerical help in your area?



5. Have you been able to mechanize any substantial part of your routine paperwork?



Methods of mechanizing routines were reported as: revised and new forms plus simplification of handling procedures; tabulating equipment for control operations; use of copying and duplicating equipment; broader use of adders, calculators, accounting machines, etc.; revised, simplified and new filing systems; broader use of dictating equipment; and use of electric typewriters for multiple copy and volume work.

6. What do you consider the most desirable methods for lightening the growing burden of paperwork in your department?

Respondents indicated, in order listed, preference for the following:

**Simplification of procedures
Training of present personnel
Mechanization of procedures
Additional office equipment
Adding new personnel**

How P.A.'s Are Beating The Paperwork Problem

THE BOOM IN PAPERWORK is even bigger than the boom in business. At least that's what a heavy majority of the purchasing agents replying to this month's Purchasing Opinion poll indicate. Purchasing is buying more than ever before; its basic workload has kept pace with the nation's general economic expansion. Paperwork is growing much faster. Here are two examples: One P. A. estimates that paperwork is up 80% while other department activities are up but 50%. Another P. A. says paperwork is up 50% while the over-all department workload has increased only 35%.

There's no doubt that purchasing agents have plenty to complain about in regard to paperwork. One indication of this is the heavy response to PURCHASING's survey. Another is the time devoted to the subject in Association meetings. But most purchasing agents do more than just talk about the paperwork problem. They try to take positive action to correct the situation—as PURCHASING's survey shows. Hundreds of purchasing agents replying to the survey made unsolicited comments in the "Remarks" section indicating what they are doing to reduce or simplify paperwork. Apparently, a big percent-



"With well trained personnel, you can cut a lot of red tape."

age of the nation's best purchasing brains are working on the problem.

There are really two basic ways to attack the paperwork problem: One is to reduce the amount of paper handled. The other is to improve techniques of handling paper. Progressive purchasing agents are using both approaches. They're doing this by mechanization, organized drives to eliminate unnecessary forms and reports, working with suppliers, substitution of pre-printed forms for manually typed documents, special small order procedures, maximum use of combination forms, use of written procedures,

and cooperation with other departments.

Mechanize Paperwork. Big companies can and are doing away with a lot of clerical work with punched card system and electronic computers. Smaller companies can't afford such expensive equipment. But that doesn't mean they can't mechanize. Two articles in this issue (*Purchasing With Punched Tape* and *Controlling Inventories by Machine*) prove that mechanization is possible with but modest investment. The response to the survey shows P.A.'s in smaller firms are taking a closer look at mechanization and many are going ahead on it.



"Our rule: file only essential records; throw everything else away."



"We have a simple system that cut paperwork 33%."

Organize "Drives." Particularly in big companies, the number of reports and forms can grow to astronomical proportions if there's no control. New paperwork is added because of changing needs; nothing is ever eliminated even if the need no longer exists. The only way to eliminate all the paperwork that's no longer needed is with an organized analysis of every piece of paper that enters and leaves the department. One P.A. did just that. He reports that "we did away with over 20% of our forms and reports after we had an organized drive to cut paperwork."

Work With Suppliers. Suppliers may be inadvertently creating a lot of paperwork both for purchasing and other departments. Receiving's paper work can be cut if packages are properly identified. Work can be saved in both accounting and usually purchasing if invoices are sent with the proper number of copies and without errors. A few companies even go so far as to give suppliers a supply of their own forms for certain purposes.

Use Pre-printed Forms. One purchasing department was able to eliminate one typist by making just two changes. Instead of writing individual letters to suppliers for quotations and delivery information, it now uses a specially designed snap-out type quotation request form and a pre-printed post card for routine expediting. This may be "old hat" to a lot of

P.A.'s but there are still a lot of routine reports being typed that could be at least partially pre-printed.

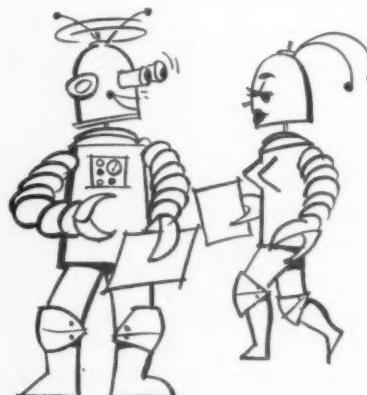
Beat the Small Order Problem. When it costs \$5.00 to issue an order for \$5 worth of material, something is wrong. Unfortunately, in many departments it costs at least \$5 to issue an order and many orders are very small ones. More and more P.A.'s are licking the small order problem with procedures designed especially to cope with it. PURCHASING discussed workable small order procedures

being used by many hundreds of companies. It's popular because of just one basic virtue: If people (including supervisors) actually know what they're supposed to do, they're bound to do a better job. If instructions are written out, "bugs" will immediately come to light and won't creep into the system and help perpetuate inefficiency.

Work With Other Departments. The plain fact is purchasing can sometimes work too hard at maintaining good relations with other departments. Take the case of the purchasing department that typed all its orders twice so other departments would get extra clean carbon copies. It finally stopped this without consulting anyone and discovered that people in the other departments didn't even notice that their carbon copies were harder to read than before! Sometimes purchasing can get stuck with paperwork that really should be handled by other departments. Some P.A.'s say invoice checking is a good example (although just as many P.A.'s strongly believe it is a legitimate purchasing function). In any event, paperwork can be cut if departments work together and if the job is done by the department responsible.

Purchasing must be applying many of the principles outlined in this article to cut paperwork. How else could it handle greatly increased volume with a less than proportionate increase in help?

Even after you've applied some of these principles, you can probably still profit from looking for further applications.



"Mechanization is the best answer to purchasing's paperwork problem."

in its October, 1955 and March, 1956 issues and is planning articles on this subject in its November, 1956 and future issues.

Make Forms "Work Harder." The survey shows use of the traveling requisition is growing by leaps and bounds because it eliminates a lot of requisition writing. More and more companies are combining the receiving report with the purchase order form or inspection report to reduce the number of times the same basic information is copied. Some are doing this by just increasing the number of carbon copies being typed; others are using spirit duplicating or diazo copying processes.

Develop Written Procedures. The purchasing manual is no longer something new; it's now



"We don't accept jobs that should be handled by other departments."

STANDARDIZE

for

Better Offices,

Lower Costs

STANDARDIZATION in the office can pay the same rewards, relatively speaking, as it does in the factory. It can cut costs, simplify purchasing procedures, promote interchangeability of equipment and supplies, and improve general efficiency.

These benefits of a standardization program in the office have been outlined by the American Standards Association, leader in the drive for the establishment of general industrial standards. In addition, ASA points out that standardization is almost a necessity, in the face of tremendous expansion in administrative services in industry. As W. H. Evans, an executive of the National Office Management Association puts it, "Unless the office finds new ways of increasing its output of the facts and figures needed by the production man, the office may become a bottleneck in industry's production drive. Standardization is one means by which the office can meet the increasing demands top management is putting on it."

Room for Development

American standards in the office field are few, but the opportunities for firms to develop their own are many. Among the standards set up by ASA in conjunction with NEMA, are those for metal and wood desks and tables for general office use. This standard provides for five widths and two depths for metal desks and tables and six widths and two depths for wood desks, as well as two heights for each.

A second standard specifies that in designating the dimensions of index cards and record keeping cards, the horizontal dimension shall be named first, followed by the vertical dimension. (Both of these standards may be obtained from American Standards As-

sociation, 70 East 45th Street, New York 17, N.Y., at 25¢ per copy.)

These are modest starts, but they are recognition from the top that the standardization field is wide open in the office supply field.

The purchasing agent who wishes to institute a standardization program into office buying must first consider, however, that not every item is subject to standardization. Also, he should realize that psychological and physiological factors play a greater role in the formulation of a program than they do, for example, in setting standards for manufacturing.

With this word of caution in mind, the purchasing agent can first examine the advantages of a good standardization program to see if they can be achieved in his own company. Then he can analyze item by item, to determine if it fits readily into a standardization program.

Advantages of Standardization

In addition to the general benefits listed above, office standardization offers these advantages:

Ease of Maintenance: Standardization provides simplification of

repair and maintenance whether these services are obtained internally or externally. It lowers the cost of stocking a wide variety of parts, and permits the operation of a rigid preventive maintenance program. It simplifies negotiation of service contracts made on the outside. It avoids confusion and disruption of the office through limited, scheduled visits of outside maintenance personnel.

Replacement Value: Trade-in, on aging equipment, can often provide a valuable price advantage. Such advantage is more easily obtained when replacing Brand A with a newer model of Brand A. Standardization is basic, also, to any program of progressive replacement of equipment.

Appearance: The office is actually a showcase, more so than any other area of the company. Appearance is important because it affects both employee morale, and the impressions that visitors to an office receive. An office with standardized furniture and lighting, for example, is invariably neater and more attractive than one furnished at random. Standardization permits interchanging of personnel and equipment without disrupting or disorganizing a work area.

Where and how various office items are used is a basic consideration before one tries to fit it, willy-nilly, into a standardization program. Following are some observations on the desirability and possibility of standardizing certain supplies and equipment.

Supply Items. This is one area in which standardization can really be pushed. Forms, carbon paper, letterheads and envelopes, pencils, desk pens, etc. are high volume items that can generally be made uniform throughout the company, permitting large quantity purchases and eliminating special or "whim" requirements. Standardization here also ends the dangers of obsolescence, and permits interchangeability. An office supply buyer for a large company suggested standardization of #10-24 envelope to conform to other envelope standards, making the item standard for the company. Former price of specially designed and printed envelopes was \$9.42 per M. New price is \$4.72 per M. The change

has saved the company thousands of dollars.

Adding machines and typewriters: Ease of maintenance and replacement value are of primary importance in considering standardization of these items. Appearance is more important in regard to typewriters than to adding machines.

Price is of secondary importance, normally, since there is little price variation among the machines offered by the various manufacturers. However, it can increase in importance, through negotiation, if all other factors are equal. As a matter of fact, two points are automatically equal for these items—quality and delivery. This is because the standards of the manufacturers themselves are so high that little difference in quality of the competitive machines is apparent.

Office size and job application are of minor importance. Actually, the only point to consider is that the smaller the office, the more valuable is standardization. A

larger office, with its greater number of machines, can reasonably "standardize" on more different brands without appreciably suffering either cost-wise or in service.

Files and desks: Three factors are of major importance here—job application, size of office, and appearance. The larger the office, with greater open areas, the more important appearance becomes. If a standard is to be set, the line should cover from the reception area to at least a supervisor situated in an open area.

With filing cabinets, appearance is less important. Although there are distinctive differences in appearance among brands, most differences are of a minor nature—trim, handles, etc. Thus, job application—blueprint, legal, letter, punched card, etc., is far more important.

Economy in the use of space will also influence standardization on one type. One large company, with rather large filing installations, adopted the five-drawer file

	Standardize		Contributing Factors		
	Readily	With Difficulty	Ease of Maintenance	Replacement Value	Appearance
Accounting Machines		✓			
Adding Machines	✓		✓	✓	✓
Calculators		✓	✓	✓	✓
Chairs	✓				✓
Collators		✓			
Copying Devices		✓			
Desks	✓				✓
Dictating Equipment	*	✓			
Duplicators		✓			
Files	✓				✓
Supplies	✓				
Tabulating Equipment	*	✓			
Typewriters	✓		✓	✓	✓

✓ = Important

cabinet as standard. The purchasing agent for that item felt that four five-drawer cabinets would give 20 file drawers and take less space than five four-drawer cabinets without hurting filing efficiency.

Difficult to Standardize

Accounting machines and calculators: Although these are fairly common office machines, they are difficult to incorporate in a standardization program. The reasons are fairly obvious; they are more nearly specialty items and rarely appear in the office system in sufficient quantities to provide the advantages of standardization. Actually, job application is the paramount point, which often makes necessary the purchase of only one possible machine.

Copying devices and duplicators: Normally, this equipment is difficult to standardize as reproduction is usually a limited operation. Thus, strong consideration must be given to office size and the physical proportions of the re-

production department. A secondary factor concerns the variety of processes and the degree of application of the processes to the working system of the office.

Actually, standardization is usually possible only within each process used by the company. Rarely can a program be operated to cover the broad field of reproduction.

"Automatic" Standardization

Dictating and tabulating installations: These systems become automatically standardized after the initial purchase. This is due to the fact that the equipment of one manufacturer is not compatible with another's. Thus, once the brand selection has been made for the initial installation, the manufacturers have removed themselves from the competitive picture—whether you like it or not. Even the matter of replacement purchasing is out of the question, as an entire, new system would have to be installed.

A standardization program for

the office is usually accomplished gradually. But, once it is in full operation, its benefits are many.

The office, according to the latest Standardization Manual of the National Association of Purchasing Agents, "offers unlimited opportunities for standardization at the company level on a myriad of items. Collectively, they can introduce substantial savings in office expense. These savings, in most cases, can be accompanied by the small as well as the larger companies.

The manual goes on to describe how one company began to pay organized attention to standardization of office equipment and supplies. When a study showed that such a program could save the firm up to \$45,000 a year, office equipment and supplies were immediately added to the regular standardization program.

Office supplies in general, says N.A.P.A., "merit the continuous attention of the company standardizing team."

Size of Office	Job Requirement	Remarks
✓	✓	Not too numerous in most offices. Job application and integration with system overwhelmingly important.
✓	✓	Possible to standardize, but job application most important factor.
✓	✓	Comfort extremely important, causing some problem for standardization. Not sufficient, however, to eliminate possibility of standardizing.
✓	✓	Specialty item. Not numerous in most companies. Most often found in larger organizations.
✓	✓	Not yet abundant in most offices, although growing in acceptance. Selection based on process needed with often more than one process desired.
✓	✓	*Automatic standardization. Initial installation results in standard as competitive systems non-compatible.
✓	✓	Not normally found in large numbers in office. In addition, one method of duplicating rarely accepted as standard.
✓	✓	Standardization may hinge on brand, job requirement or department using item.
		Normally standardized since items are usually bought in large quantities. No problem.
		*Automatic standardization. Initial installation results in standard as competitive systems non-compatible.
		May result in dual standardization—one for standard machines and one for electric typewriters.
✓ = Very Important		

Good Office Layout in

If your chances for getting more room in which to operate are slim, here are some ideas for making better use of what space you now have.

IDEALLY, purchasing office layout should be based on concern for immediate needs and appearances, and on long-range planning for expansion. Unfortunately, many purchasing agents are handicapped in trying to meet either of these requirements.

The primary cause, which is generally beyond their control, is lack of space because of management's failure or inability to allot enough work area to purchasing. But the realistic will admit that in many cases the head of the department is at fault—he simply does not know how to make best use of what space he does have.

In 21 years of planning, designing and equipping all types of purchasing offices, I have encountered many difficult problems of layout. I feel that with a little forward planning and a determination to make the best of things,

the average space-starved purchasing executive can arrange his offices so that they operate at least in a satisfactory manner. In addition, he can make the purchasing department a bright and attractive introduction to the company for visiting vendors and representatives.

A Sample Problem

Using actual situations as a basis, I have created a problem in which the purchasing department of a medium-size company must improve its operating efficiency but is unable to obtain more space in which to do it. There are 11 persons in the department—a purchasing agent, three buyers, three secretaries, two clerical workers, and a man and his secretary who do general service work.

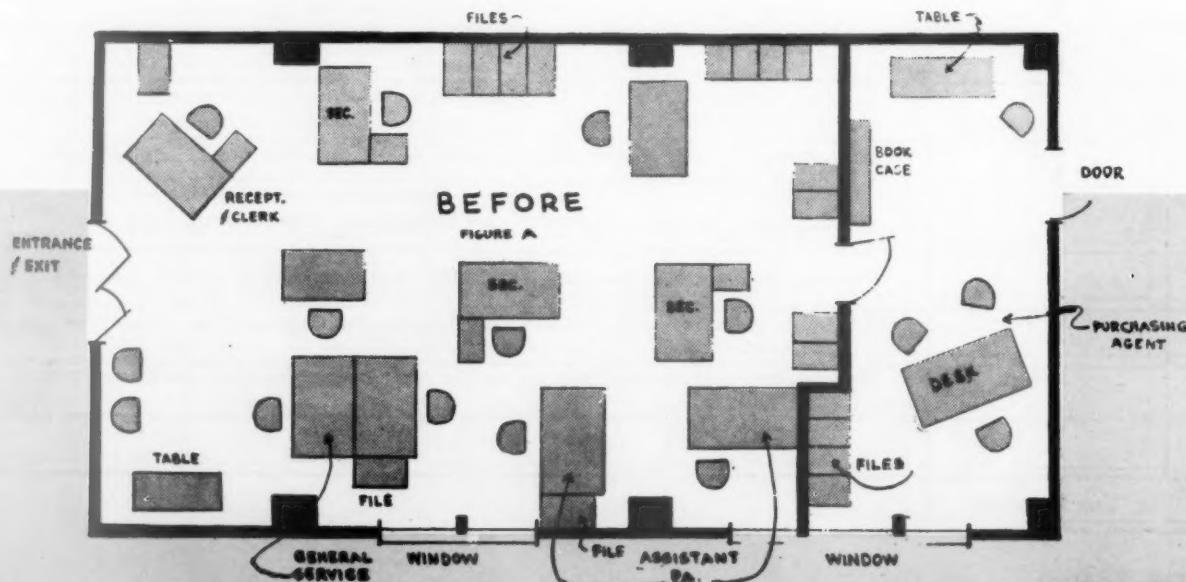
The problem and its solution are illustrated by accompanying diagrams. By adapting the basic

principles of planning, equipping and organizing applied in this example to your own situation, you can, I am sure, solve many of your problems of layout.

Notice, in drawing A, that little attention is given to privacy, with most operations being performed in an open area. You will also see that most of the furniture is an accumulation of "hand-me-downs." Desk sizes, for instance, range from 42" to 60", and probably cover a variety of finishes from oak to mahogany.

The filing setup suffers, too, as it must be spaced around the office in complete disregard of sensible workflow. Movements of clerks searching files and the constant flow of people in and out of the department cause many distractions.

Reception facilities for salesmen are unsatisfactory. They have little comfort and privacy while



n Limited Space

By Ben Itkin, President

Itkin Bros., Inc., New York, N.Y.

waiting to see the buyer. The single door arrangement results in a constant movement in and out of the department.

This hodge-podge layout, probably compounded by poor decor and insufficient lighting is poor public relations in respect to visitors, and has a depressing effect on employee morale, whether workers are conscious of it or not.

Better Planning

With a little effort and intelligent expenditure for some needed equipment, the whole department can be vitalized as shown in drawing B. Here is the same department, in the same physical space, equipped to provide the best working tools and designed for maximum efficiency.

Look at the reception area. It's comfortable and practical. In all probability the salesman is greeted cordially and provided with a

valuable "welcome" booklet from the company. The area is not isolated, but instead is set-off from the rest of the office by a movable partition half glass and half steel.

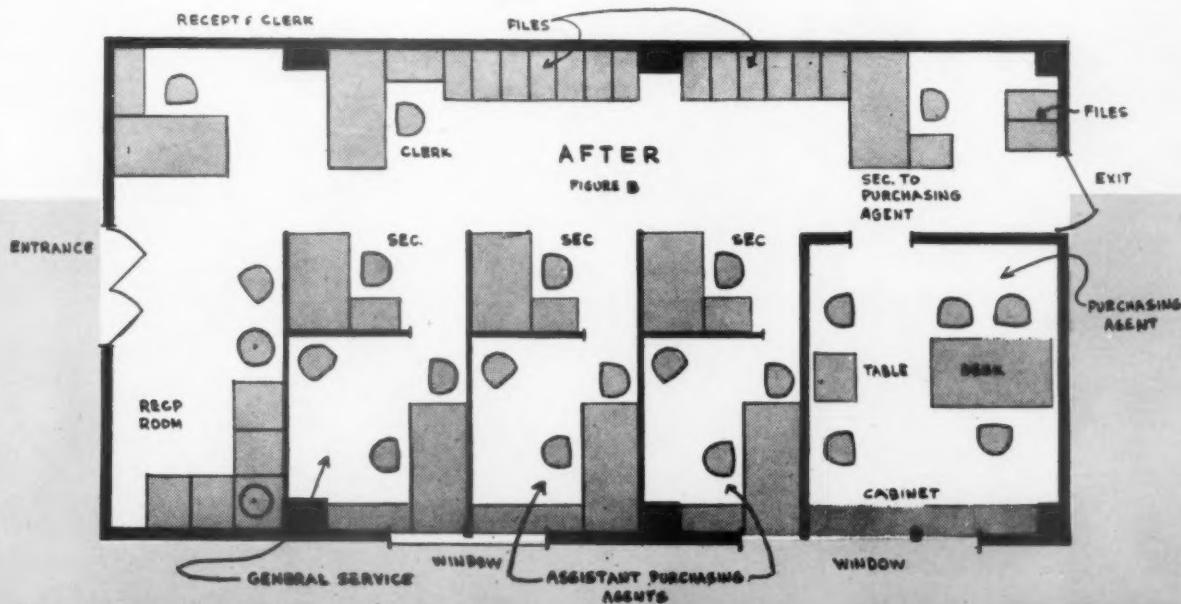
The assistants, or buyers, and the purchasing agent all have private or semi-private offices. These, too, are set up with movable partitions and are equipped with modular furniture. All the equipment in the office is standardized as to size, finish and design. The purchasing agent, as administrator of the department, has a private office with important information readily available, stored in a credenza arrangement along one wall. His desk differs from the others in that it is a conference type piece of furniture. This, with tasteful leather chairs provides a comfortable atmosphere for conferring with his associates.

The filing system is centralized, with all five-drawer units readily

available to secretaries and clerks. In fact, one clerk can even do the job of receptionist without disturbing the workflow. In addition, movement through the office is eased as an exit is provided for salesmen. Thus, the back and forth movement is reduced considerably.

Should a move be necessary, as is often the case, it is no serious problem. Movable partitions and modular furniture are easily moved and re-arranged with nothing more than a screwdriver.

Here, then, is one solution. It's nothing more than making the best of available space and providing proper working tools. While the office in drawing A is workable, how much better in appearance and from the standpoint of morale the office in drawing B must be. Indeed, the office is now a better place to work in, not a place to work at.



Functional Layout for A Purchasing Office



Among the tenants just moved into New York's newest and most spectacular skyscraper, is Air Reduction Co., Inc. Air Reduction, which occupies two floors of the stainless steel-sheathed Socony Mobil Building, has laid out its offices on strictly functional lines. The purchasing department, in particular, has been planned so that the necessarily heavy traffic flow causes the least possible disturbance. The area in which clerical work is performed is centralized, and a high degree of privacy is maintained for buyer-vendor discussions. Shown here are some of the outstanding features of the purchasing office, which is headed by Purchasing Agent Richard N. Chapin.

The 45 stainless steel covered stories of the new Socony Mobil building are the newest addition to New York's soaring skyline.

The reception area is softly lighted, tastefully furnished.





The general working area of the purchasing department is organized to permit visitors to walk around its perimeter without disturbing clerical activities. Files and catalogs are in rear.



In his office at the far end of the room, Purchasing Agent Chapin dictates to his secretary, Loretta Marinz.



Translucent panels provide additional diffused light for individual offices. Although convenient to the general office, the buyers' offices permit private conversations.

Controlling Inventory by Machine

Diebold, Inc. used to post its inventory control records manually. Now machines do the job. Results: With a modest investment eight fewer people are required, errors have been drastically reduced.

Hand Posting was the old way . . .

CHANGING from manual inventory control to mechanized inventory control has resulted in tremendous cost savings for Diebold, Inc. of Canton, Ohio. Some of them are easy to measure; others aren't. One saving certainly isn't hard to figure. The mechanized set-up made it possible to replace thirteen men with five girls. The men formerly spent their time manually posting records and following up on shortages. Now this job is done better by female machine operators.

Other savings are probably even more significant though they're harder to measure. Mechanization means fewer possibilities for human error. This, in turn, helps minimize investment in inventory and also reduces shop downtime resulting from lack of stock.

Inventory control at Diebold involves about 14,000 different items. The company's annual sales volume of \$18 million comes from a widely diversified line of cabinets, safes, and record-keeping systems for banks. More than 500 different products are marketed. Obviously individual job quantities are usually quite small so the company

OLD WAY: Like hundreds of other companies, Diebold used to control inventory by manually posting information to a card like this. Posting was much slower; errors were cumulative; and it was almost impossible to keep neat records.

operates on a job shop basis. With such an operation, a sound inventory control system is an absolute must according to Diebold's director of purchases, C. A. Brogden.

Old System Worked

Fortunately, Diebold has always had effective inventory control. Its old system was by no means unique and resembled that used by hundreds of companies today. Information on stock withdrawals, receipts, orders, and future stock needs flowed into a central inventory control group. There it was posted manually to individual stock record cards. Requisitions were then written on the basis of a manual computation of balances required.

This system worked just as it does for other companies. There were only two drawbacks. First,

it was costly. Second, there was always the possibility of human error in making extensions. If an error were made, it was perpetuated; there was no automatic way in which it could be picked up. Sometimes the error was discovered only when the shop advised they were almost out of stock on an item for which there was theoretically an adequate supply on hand. This meant a rush job for purchasing. Unfortunately, the best purchasing department in the world can't escape a minimum lead time for items that must be made to order.

Machines Were Bought

With a company the size of Diebold, funds available for capital expenditures are by no means limitless. Fortunately, the investment needed to improve its in-

ventory control system was modest (and it took but a few months for the savings to equal the original cash outlay). Diebold now handles inventory records with five National Cash Register Class 31 machines. Once the basic information is fed into them by the operator, these machines automatically compute and print the necessary information on stock balances. In addition, they are self-checking on errors. If the final "Proof" balance isn't 0, the operator knows something is wrong and can check for the error.

Diebold uses a specially designed Production & Inventory Control Record with its machines. A card is made out for each item and it serves as a complete inventory record of the item. Four transactions are basic to the system and each is recorded on the

Machine Posting is the new way ...

NEW WAY: This is how the four inventory control transactions described in this article would be reflected on the Production & Inventory Control Record. As compared with the old way, the job is now done much faster with fewer errors.

cards by the machines. They are: reservation, material ordered, order received, and reservation issued.

Making the Reservation

The "reservation" is an indication of future needs by the shop. It's computed from the planned manufacturing schedule and the product bill of material. Material that is either on hand or on order is "reserved" for future needs by posting the reservation to the card. When it is posted, the machine subtracts it from the balance that is already in stock or on order. The difference is the balance available for future reservations. If the balance is inadequate for the reservation being made, the machine prints the difference in red as a negative number. In this case, a requisition must be issued to purchasing to make more material available.

Sometimes, of course, material should be ordered even if there is a positive balance available. This can be picked up by visually comparing the total balance available on order or in stores with the order quantity, monthly usage forecast, delivery time, and reserve figures that are filled in on the form.

Repeating Purchase Requisitions for each item are kept in inventory control. When calculations by the machine indicate the need for more stock, inventory control sends these traveling requisitions to purchasing so a buy can be made.

To see how the reservation is made in practice, refer to the sample Production & Inventory Control Record shown in this article. The transaction dated August 1 is the reservation. 100 pieces were reserved on order A-11190. The operator types in this information with the machine; the rest of the job is done automatically. In the Balances column, the machine prints a reserved total of 100. The available total of —100 reflects the reservation of 100 and the fact that nothing is in stores or on order. The total quantity reserved and the quantity available must always equal the total of quantities on order or in stores. In this particular case, total reserved is 100 and total available after the reservation is —100. $100 + (-100)$ equals 0. Since nothing is on order or in stores, the situation is in balance and the machine prints a 0 in the Proof column. If the machine didn't print a 0, the operator would look for an error.

Ordering the Material

If the machine prints a negative balance in the Available column or if visual examination indicates the need for a purchase, the traveling requisition for the item is

pulled from file. Requisition information is filled in and the form goes to purchasing. The buyer then makes the purchase, fills in purchasing department part of the traveling requisition and returns it to the inventory control group. The purchase is then recorded on the Production & Inventory Control Record by machine.

The sample Repeating Purchase Requisition and Production & Inventory Control Record shown in this article illustrate the material ordered transaction. First, the section of the requisition headed, "To Be Filled In Only By Production Planning Office" is filled out. In this particular example, 1000 pieces are requested before September 5, 1956. On August 6, the buyer places Purchase Order No. J-8091 with the ABC Co. calling for delivery of 1000 pieces on or before the required date. He indicates this on the traveling requisition and then sends it back to the inventory control group. The purchase transaction is then posted by machine to the Production & Inventory Control Record. In our example, the operator types in date, August 6, 1956, the order number, J-8091, and the quantity 1000. The machine then automatically calculates that 900 pieces are now available for future reservations (the 1000 pieces ordered less total outstanding reservations of 100 pieces). Reservations of 100 plus available balance of 900 equal the on order total of 1000 plus balance in stores of 0. The transaction balances and a 0 is printed in the proof column indicating that no errors have been made.

Receiving the Order

When an order is received, a copy of the receiving report is sent to the inventory group. Each receival increases the balance in stores and reduces the balance on order by a corresponding amount. This, of course, must be recorded on the Production & Inventory Control Record. The operator types in the date, order number and quantity received in the Receipts & Issues column of the Record. The machine then calculates and prints the new balances that are on order and in stores.

In our example, the third entry on the form illustrates the receival of purchase order J-8091. The balances available and reserved remain unchanged at 900 and 100 respectively. Balance on order is reduced from 1000 to 0 and balance in stores is correspondingly increased from 0 to 1000. Since 100

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Diebold uses five machines to control inventory. Each operator controls a group of commodities and record cards are kept near her for ready reference.



Purchasing Agent C. A. Brogden, right, and Inventory Supervisor R. B. Nakervis meet regularly to iron out mutual problems on shortages, schedule changes, etc.

$+ 900$ equals $0 + 1000$, the transaction checks out. A 0 is printed in the proof column showing that there have been no errors.

Issuing the Reservation

When stock is withdrawn from stores for use in manufacturing, this transaction must also be reflected in the inventory record. A record of the withdrawal goes to the NCR machine operator. She types in the date, reservation number, and quantity. The machine then makes the deduction from the reserve balance and the in-stores balance, and posts a new total of the quantities issued year-to-date and month-to-date.

In our example, the reservation made on order number A-11190 is withdrawn from stock on September 17. The new reserved balance is 0 (the difference between the 100 pieces that were formerly reserved and the 100 pieces that are withdrawn) and the new balance in stores is $1000 - 100$ or 900. In addition, the record now shows that 100 pieces have been issued from stock in the year-to-date and in the month-to-date.

Other Transactions

The steps that have been outlined would be enough to control inventory well if there were never any changes. In practice, however, schedules change, physical inventories don't agree with theoretical balances, orders must be cancelled, etc. All such changes must be allowed for in the inventory control procedure. Diebold calls

them "special transactions" and the machines are set up to handle them. There are five such transactions — Floor Stock, Cycle Count, Reservation Cancelled, Red Available, and Orders Cancelled.

Floor Stock. Some items are always needed on the factory floor since they're common to a number of jobs. Because of this, they're not reserved for any special job. When floor stock is issued, the floor stock tag goes to the inventory control group and is recorded as a withdrawal from stock.

Cycle Count. Differences between the actual quantity in the storeroom as indicated by the Cycle Count Tag and the quantity shown in the Balance in Stores column on the Production & Inventory Control Record must be adjusted. This is done by posting the net increase or decrease in stock to the Receipts and Issues section of the inventory record.

Reservation Cancelled. When a schedule changes, it's necessary to cancel or alter the reservations that have been made. This transaction is, in effect, the opposite of making the reservation. It's handled in a similar fashion except the machine deducts from the previous total where it added when the reservation was made.

Red Available. Because their usage is reasonably continuous, some parts are stocked on a maximum-minimum basis and are not

bought for specific jobs. They're called "Required" items. When a reservation is posted to a stock item, the machine automatically stops if total reservations exceed total on order or in stock. In this case, the amount available after the reservation is made is a negative figure and is printed in red. The operator re-starts the machine, finishes the calculations, and then gives the card to a planner so he can check to see if an additional quantity should be requisitioned.

Orders Cancelled. This transaction usually results from a reduction or cancellation of a reservation or, sometimes, from a cycle that reveals excess stock. Outstanding purchase orders must either be cancelled or reduced. Such adjustments are posted to the inventory record in roughly the same manner that the issuance of an order is recorded. The only difference is that there's a reduction, not an increase, in balances available and on order.

Common Sense Basic

According to Diebold's inventory supervisor, R. B. Nakervis, the company's National Cash Register inventory control system is designed to take a lot of the drudgery out of inventory control and to minimize errors. It's not a "robot" system; prime requisites for good planning are still planners with common sense and good judgment.

Office Furniture—

Wood or Metal?

One of the first and most important considerations when office furniture is to be purchased is the material it is to be made of. To provide furniture buyers with information on the relative merits of wood and metal furniture, 11 basic questions were asked of the Wood Office Furniture Institute and Art Metal Construction Company. Their answers can help you reach a sound buying decision.

1. How does the initial cost of the (wood, metal) item compare with a similar item of the competitive material?

WOOD: Taking standard trade discounts into account, comparable items of clerical and general wood office furniture costs about the same as that of any other material. Its first cost is virtually the final cost since there is no heavy charge for maintenance.

METAL: The initial cost of metal and wood office furniture is about equal. Any initial price advantage depends largely on the type of furniture itself, with the advantage in favor of metal for furniture for the executive office.

2. How broad a range of styles (clerk to executive) can be obtained?

WOOD: Wood office furniture styles are virtually unlimited. Antiques are wood; so are tomorrow's free-form desks and all-season comfort posture chairs. Numerous styles and designs in-between are available to suit every taste and interior. From stock pieces at stock prices the entire office—from the accounting department to the conference room—can assume its own, individual "face."

METAL: The broadest possible range of metal furniture is available for the office, with desks and matching equipment for secretary, general clerical and executive personnel. There's a style and model to handle every job function and optional equipment for standard units permits planning to fit the specialized needs of the individual.

3. How easily can special treatment of drawers, typewriter wells, etc., be arranged?

WOOD: Wood office furniture is for every business need with special desks for the typewriter operator, calculating machine operator, etc. Since wood is flexible, and does not require expensive mass production tools, individual pieces can easily be adapted, matched and arranged. Matching modular stock units allow for every conceivable kind of arrangement, putting all office equipment within comfortable reach of but a turn of the posture swivel chair.

METAL: Interchangeability of desk parts and drawer fittings makes it possible to tailor desks to meet most normal requirements. These can be set up using standard stock parts, thus resulting in little or no delay in preparation. However, when requirements call for absolutely special parts, not normally stocked, time involved in delivering the completed item depends on production and scheduling within the factory.

4. How easily can the items be cleaned, and how? (What about composition tops?)

WOOD: Wood office furniture is easy to clean and keep clean. A cloth and some furniture cleaner and polish, or plain soap and water, are all that is needed. A simple application of furniture polish will cover scratches, which present such a problem on painted surfaces. While wood desks are available with a variety of composition tops, these are really not necessary since modern wood finishes do not require this protection.



These wood desk systems are made up of two L-shaped walnut units. One unit is suitable for use either as conference or work area. The other is a credenza top, with storage units below.

METAL: Enamelled surfaces on metal equipment can be cleaned by using soap and water to remove dirt, then rinsing with water and wiping dry. Inexpensive cleaner, supplied by the manufacturer, is then applied and the surface wiped dry. Linoleum tops are cleaned in the same way, with surface finish restored with dull-finish furniture wax.

5. *How does its appearance add to the prestige of the office?*

WOOD: The natural beauty of fine wood itself—walnut, oak, mahogany, cherry-walnut, etc.—with its touch and feel spell quality and dignity. Wood is the only furniture material which matches and complements all existing interiors and keynotes new ones.

METAL: There is no question but that metal furniture adds distinction to the modern office. Metal readily fits the modern theme of decoration with a variety of styles to fit any taste. In addition, metal furniture is available in a variety of decorator colors.

6. *When a style has been selected, can matching equipment be obtained for the rest of the office?*

WOOD: Yes, if you choose wood. Favorite wood furniture styles are not subject to rapidly changing fashion fads.

METAL: Metal furniture is available in a complete line of matching equipment, both for executive and general office.

7. *What are its advantages from the standpoint of style, color and finish?*

WOOD: The natural beauty of wood is more than skin deep, because the material is beautiful—not just its coating. Finishing processes give greater hardness, more stable colors and greater durability. Available styles and colors blend with every decor.

METAL: Advantages of metal from the standpoint of style, color and finish are numerous. Strength and rigidity of the material permits compact, space-saving design and allows the use of maximum space for drawers. Top-quality, oven-baked enamel finish provides the metal with an attractive, lasting protection. The almost unlimited choice of styles and finishes, too, make it possible to fit metal furniture into any type of decorating scheme.

8. *What is considered the normal life for desks, chairs and files?*

WOOD: There can be no answer if the furniture is made of wood. Wood furniture invariably outlasts the man who buys it.



A metal desk and console in tan finish contrast with a redwood panelled wall and green carpet in this office. Aluminum chairs are upholstered to accent the draperies.

METAL: The life of metal furniture is usually more than double the normal 10-year depreciation schedule.

9. *What, in your opinion, are the main advantages of (wood, metal) furniture over the competitive material?*

WOOD: Wood furniture is more durable, it has timeless beauty, greater flexibility, can always be matched, and has greater financial value in terms of re-sale. Wood is a poor conductor of heat. In a 30-minute fire, for instance, where the piece itself is not consumed, the contents of the furniture—such as papers in drawers—will survive. In metal furniture, the heat will often cremate papers even though the furniture is only superficially damaged. Wood does not "refrigerate" in air conditioned offices—a frequent complaint of clerical workers with metal desks. Wood does not conduct electricity, thus being free from shock.

METAL: One of the chief advantages of metal over wood is its non-splintering. Also, once drawers are fitted, they will operate smoothly for years with a minimum of cleaning and lubrication. Metal, too, is not affected by atmospheric changes. Less maintenance is required to maintain its original appearance and workability. Arc and electro welding makes it possible to attain a firm and sturdy construction. Metal holds up better under hard, rugged use, including frequent change of position. Metal is non-combustible. It provides an ideal writing surface. All drawer

pulls and other hardware are solidly fastened for reliable and permanent service.

10. *What are its advantages and disadvantages in respect to employee morale, and how important is this factor?*

WOOD: "There is something about wood," says Dr. James Moselle of George Washington University, "its visual appearance, its solidity, its 'feel', that appeals deeply and unconsciously influences our feelings, especially the feeling about ourselves, our 'ego.'"

METAL: The installation of new equipment—either metal or wood—results in a natural uplift in morale. However, the effect with metal is accentuated by the functional adaptability of the line. The wide range of styles and the ease with which units can be tailored to needs reduces fatigue by putting working tools close at hand.

11. *How fast can matching pieces, of all types, be obtained from stock to meet emergency needs?*

WOOD: Wood furniture is manufactured in the east, middlewest and south, and is more readily available than furniture of other materials. Most dealers have a large stock on hand. Delivery time is comparable with that of other products.

METAL: When matching furniture is needed to fit in with stock units, standard units can be furnished in normal delivery time. Delivery of units involving special work takes longer, depending on the amount of extra work time involved.

The Pulse of Business

OCTOBER 1956

PURCHASING'S Summary of economic conditions

The only bad thing about business is that it is too good!

Industrial production has already bounced back to its pre-steel strike level. The Federal Reserve Index is up 5 points to 141 - exactly where it stood in June. Employment has never been greater. And heavy expenditures planned for plant and equipment should boost the number of jobs even further.

But the rosy picture is clouded for purchasing agents. Demand for goods and services is pushing supply too hard. Result: prices are rising. The general commodity price index is only $1\frac{1}{2}\%$ below the all-time high reached in early 1951 - in the middle of the Korean war. At 114.6 it's higher than it has been in over five years.

Unfortunately, price inflation is worse than indicated by an over-all index. Price increases have been concentrated in certain commodities. Farm products, for example, are 11% cheaper than they were on the average in 1947-49. Metals and metal products are up 50% over the same period. Purchasing agents normally don't benefit from lower farm prices - but they feel the effects of higher metal prices.

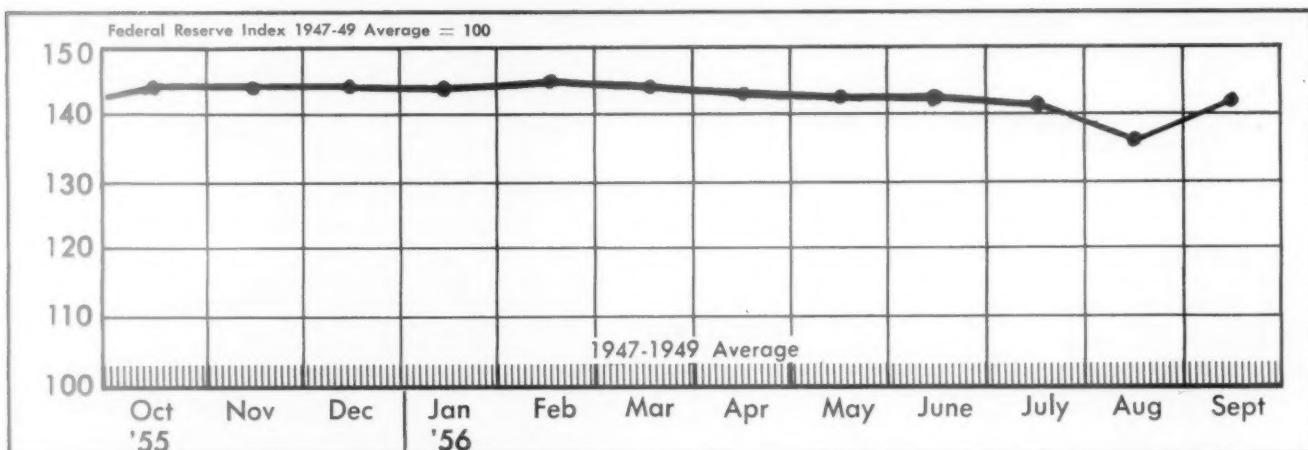
The upward trend in metal products prices seems destined to continue. And the upward pace will probably gain speed. Prices are already up about 3.6% in just the last month. And the index hasn't yet picked up many of the price hikes announced in recent weeks.

What can the purchasing agent do to buck this inflationary trend? It's too strong for him to reverse it. But he can blunt its effect with good negotiation, intensified shopping, and substitution of less costly materials.

Price inflation does make the purchasing agent's job easier in one respect. He doesn't have to worry about inventories getting too high - for a while at least. One reason is that inventories aren't as high as they seem. It takes a greater dollar investment to carry the same physical volume. Another reason is that inventory bought today is worth more tomorrow - so there's less chance of being hurt by poor judgment. There's just one thing to watch for: the turning point in prices (if it ever comes). Then abnormal inventories can become too much to handle.

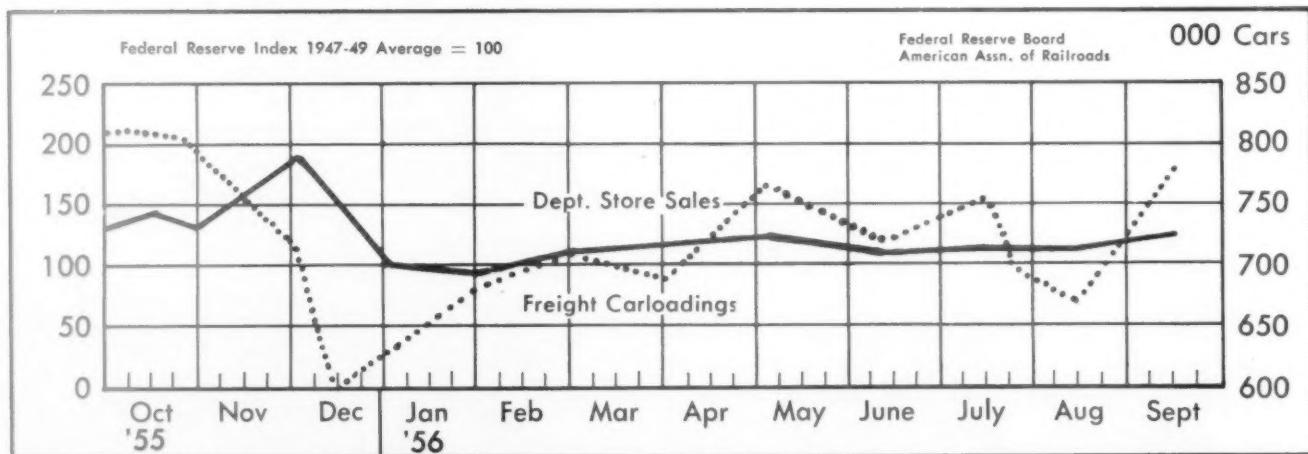
THE PULSE OF BUSINESS

PRODUCTION



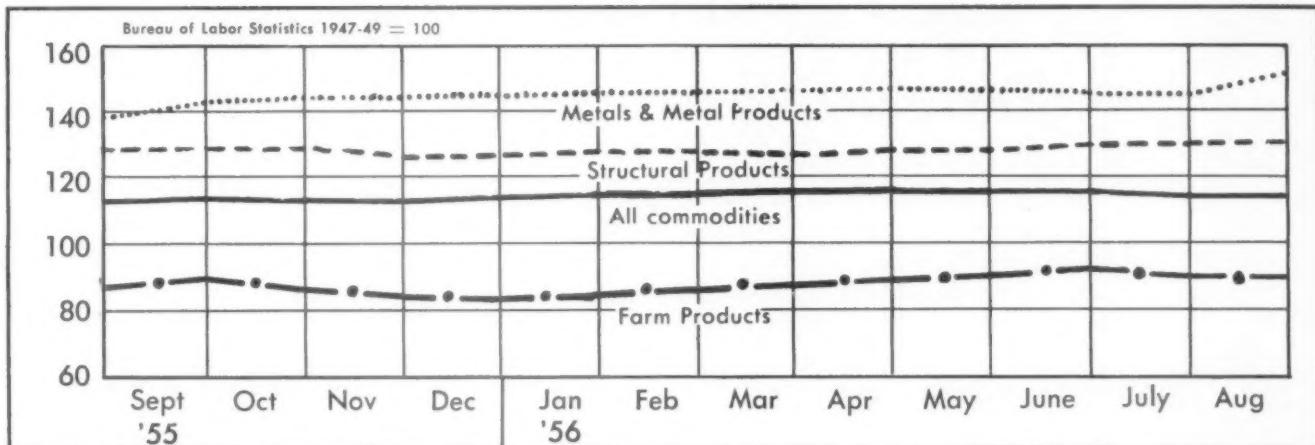
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Industrial Production Index	1947-49=100	141	136	140	+ 3.7	+ 0.7
Steel Production (Weekly)	000 net tons	2,429	1,290	2,264	+ 88.3	+ 7.3
Electric Power Production (Weekly)	mil KWH	11,565	11,190	10,706	+ 3.4	+ 8.0
Bituminous Coal Production (Weekly)	000 net tons	10,145	9,235	9,449	+ 9.9	+ 7.4
Auto, Truck & Bus Output (Weekly)	units	76,661	131,874	100,663	- 41.9	- 23.8
Petroleum Output (Daily Average)	000 bbls.	6,991	6,951	6,558	+ 0.6	+ 6.7

TRADE



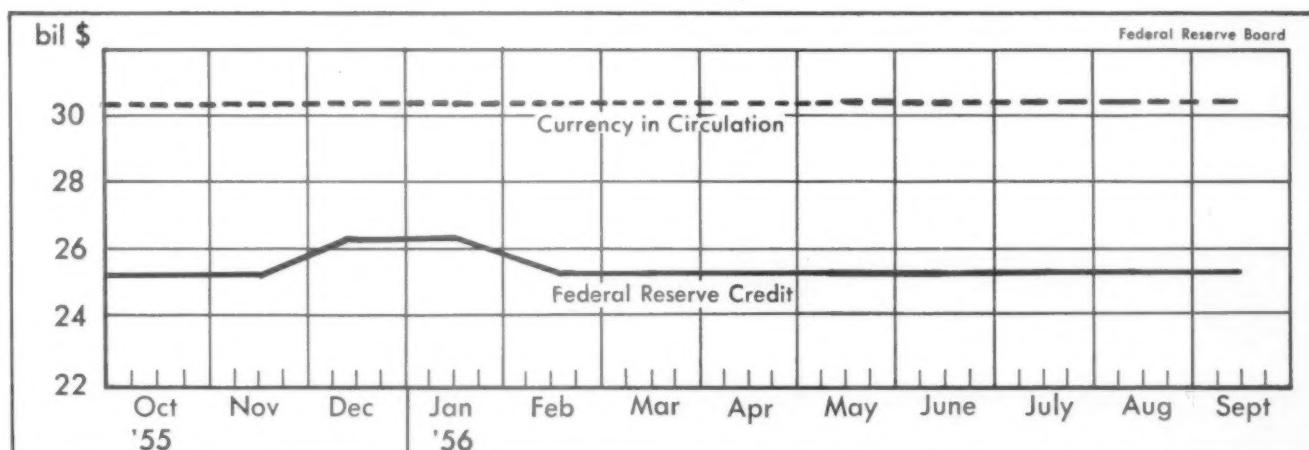
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Dept. Stores Sales Index (Fed. Res.)	1947-49=100	127	104	125	+ 22.1	+ 1.6
Commercial Failures (Dun & Bradstreet)	no.	237	282	215	- 18.0	+ 10.2
Freight Carloadings	cars	784,366	660,287	789,722	+ 11.8	- 0.7
Miscellaneous Carloadings	cars	385,593	320,116	383,432	+ 20.2	+ 0.6

PRICES



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
All Commodities (BLS)	1947-49=100	114.6	114.0	110.8	+ 0.5	+ 3.4
Farm Products	1947-49=100	89.1	90.0	88.1	- 1.0	+ 1.1
Metals & Metal Products	1947-49=100	150.1	144.9	139.3	+ 3.6	+ 7.8
Structural Products	1947-49=100	130.8	130.6	126.1	+ 0.2	+ 3.7
Steel Billets (Pittsburgh)	net ton	\$74.00	\$74.00	\$68.50	0	- 8.0
Steel Scrap, heavy melting, Pitts	net ton	59.00	51.00	44.50	+15.7	+32.6
Copper, electrolytic	lb.	.40	.40	.43	0	- 7.0
Rubber (rib-smoked sheets)	lb.	.331/8	.36	.491/4	- 8.0	-27.8

FINANCE

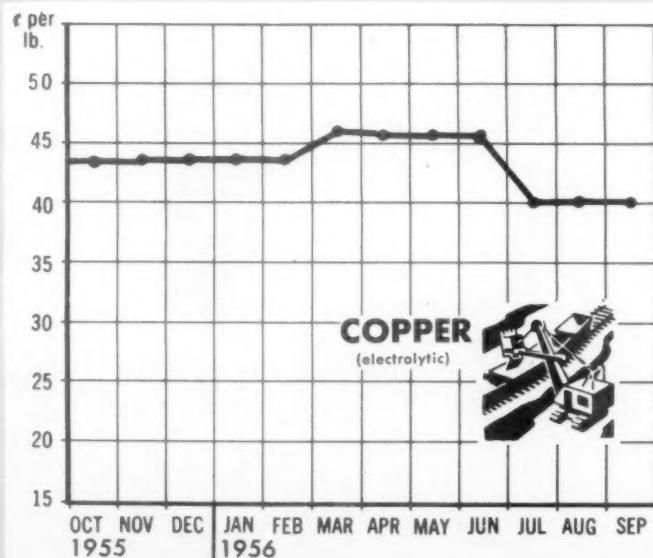
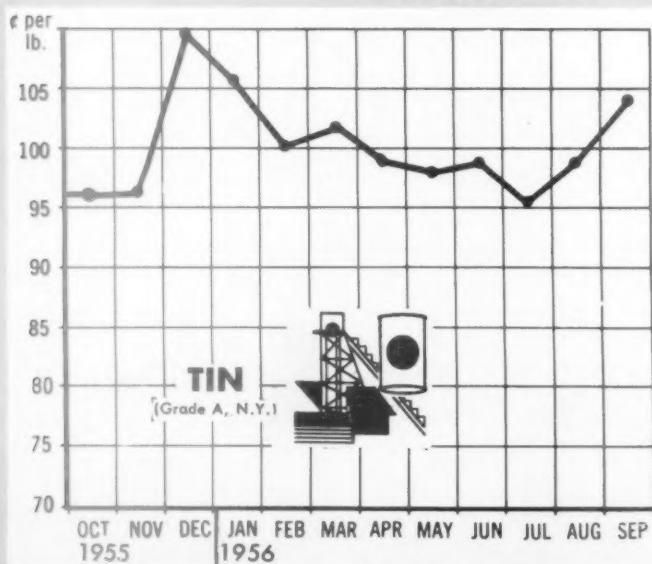
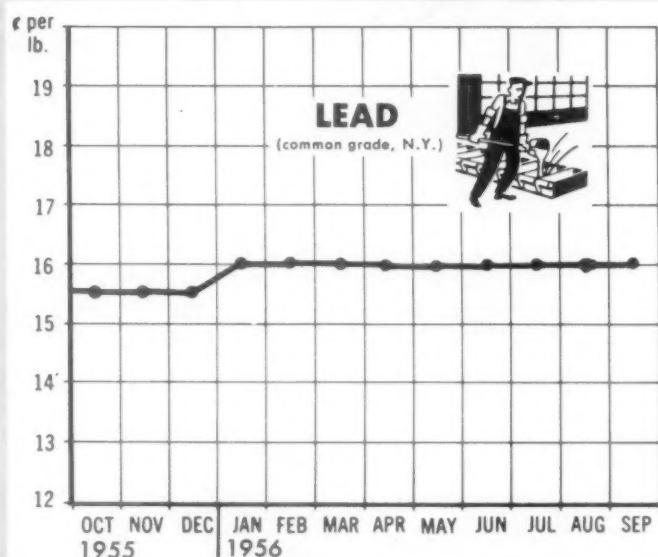
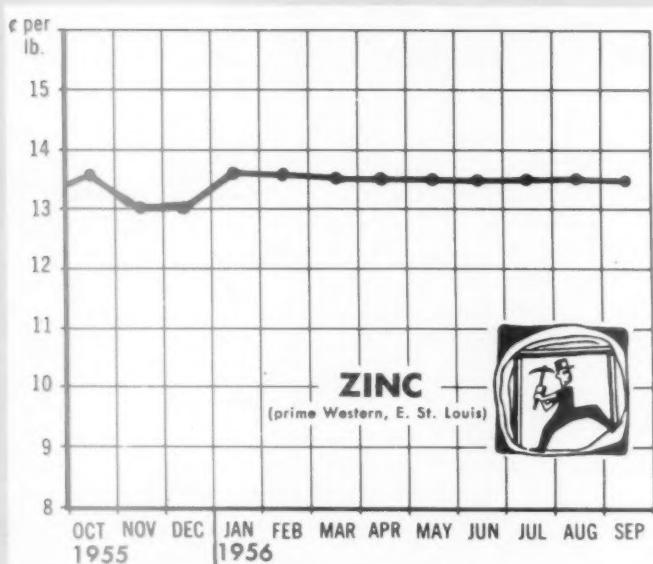


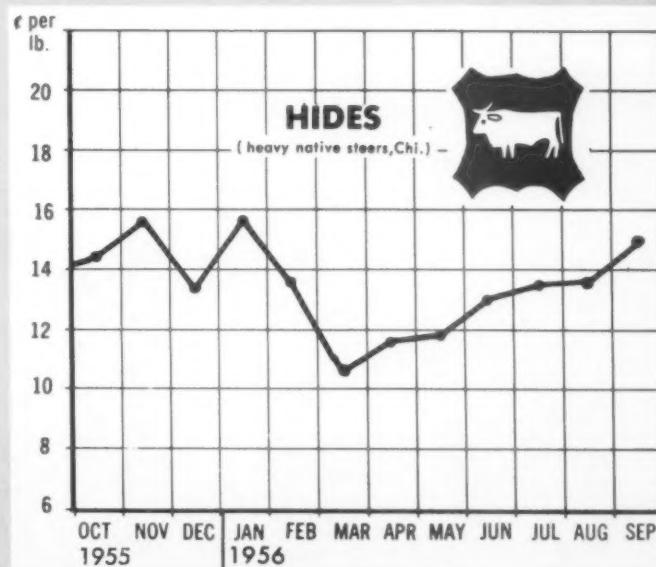
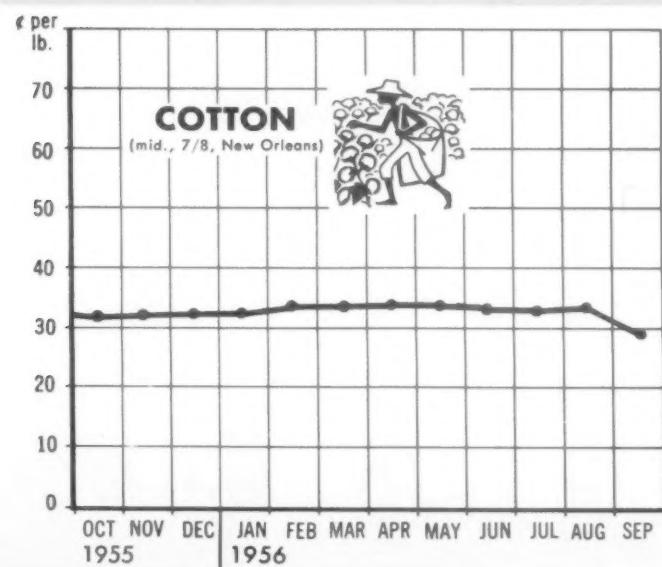
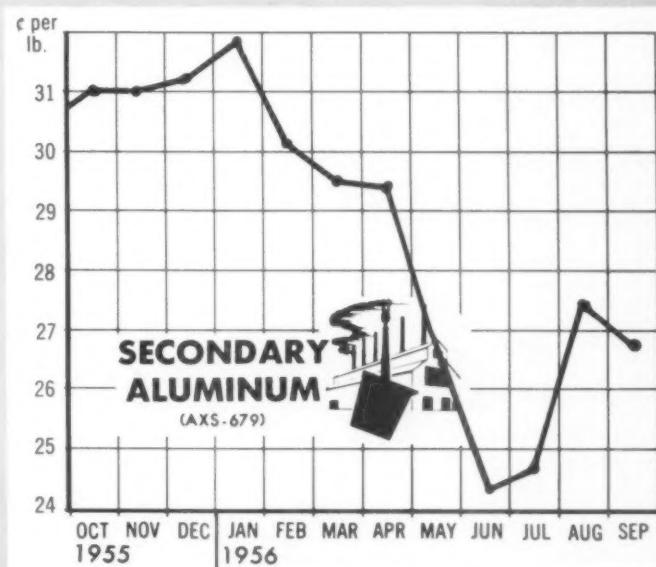
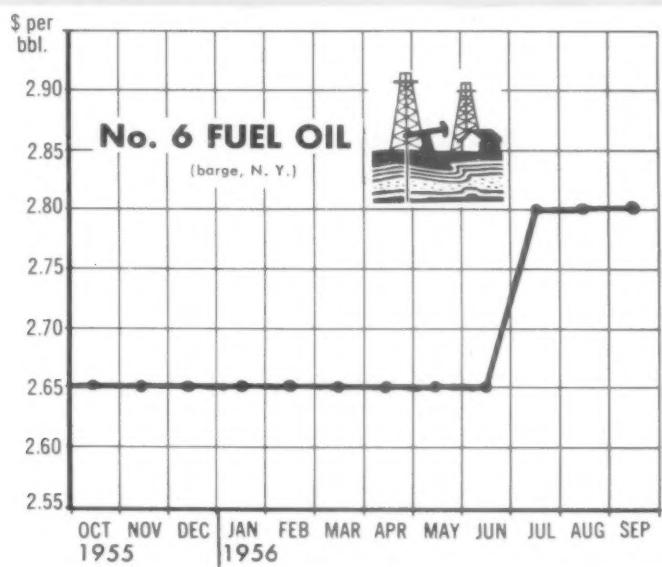
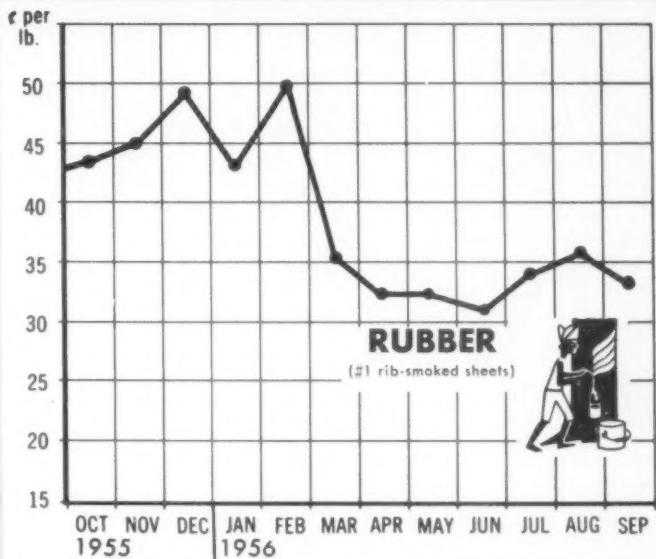
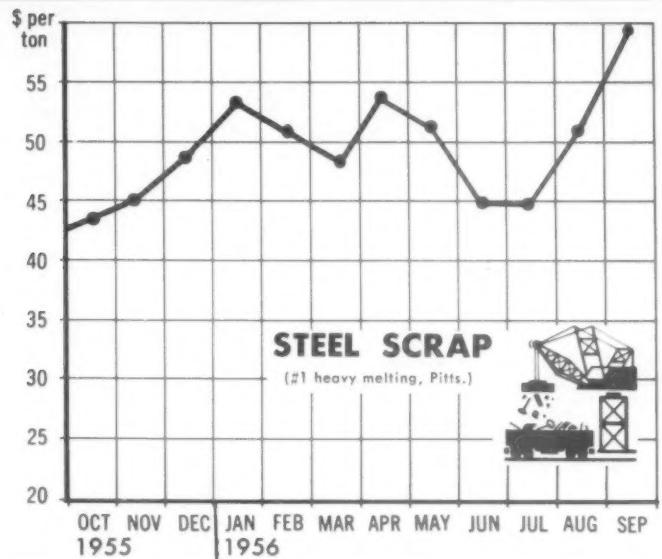
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Stock Prices (Standard & Poor's)	1926=100	381.9	391.6	348.3	- 2.5	+ 9.6
Bank Clearings (New York)	mil \$	8,548	8,871	7,627	- 3.6	+12.1
Federal Reserve Credit	mil \$	25,454	25,182	25,401	+ 1.1	+ 0.2
Currency in Circulation	mil \$	30,787	30,633	30,438	+ 0.5	+ 1.1

THE PULSE OF BUSINESS

Key Commodities Steady Despite Rising Labor Costs

Prices of the usually volatile commodities like secondary aluminum, crude rubber, etc. are remarkably steady in view of the general inflationary trend which includes rising labor costs and continuing price increases for basic manufactured products. Only exception is steel scrap which is soaring to new heights as a result of extremely heavy demand. *This general stability won't last.* As long as overall production continues to climb, there will be upward price pressure on most commodities. Higher auto output, in particular, may result in increased demand and higher prices for tin, zinc, lead, and crude rubber.





THE PULSE OF BUSINESS

Sales, Inventories and New Orders

**Value of Manufacturers' Sales
Seasonally Adjusted
(Millions of Dollars)**

All manufacturing industries.....	
Durable-goods industries.....	
Primary metal.....	13,503
Fabricated metal.....	2,138
Machinery.....	1,407
Transportation equipment.....	3,475
Lumber and furniture.....	3,615
Stone, clay and glass.....	1,198
Other durable goods.....	657
1,013	1,036
Nondurable-goods industries.....	13,228
Food and beverage.....	4,223
Tobacco.....	316
Textile.....	1,133
Paper.....	834
Chemical.....	1,844
Petroleum and coal.....	2,299
Rubber.....	471
Other nondurable goods.....	2,108

**Book Value of Manufacturers' Inventories
Seasonally Adjusted
(Millions of Dollars)**

All manufacturing industries.....	
Durable-goods industries.....	
Primary metal.....	43,938
Fabricated metal.....	24,563
Machinery.....	3,197
Transportation equipment.....	2,604
Lumber and furniture.....	8,010
Stone, clay and glass.....	5,905
Other durable goods.....	1,755
Nondurable-goods industries.....	2,186
Food and beverage.....	19,375
Tobacco.....	4,358
Textile.....	1,832
Paper.....	2,398
Chemical.....	1,063
Petroleum and coal.....	3,039
Rubber.....	2,753
Other nondurable goods.....	853

Manufacturers' New Orders (Seasonally Adjusted)

All Manufacturing Industries.....	
Durable goods industries.....	27,044
Nondurable goods industries.....	13,571

	1955		1956			
	July	Mar.	Apr.	May(r)	June(p)	July
26,731	27,095	27,237	27,796	27,709	26,100	
13,503	13,294	13,519	13,754	13,879	12,500	
2,138	2,444	2,442	2,472	2,519		
1,407	1,385	1,434	1,486	1,452		
3,475	3,630	3,740	3,935	3,960		
3,615	3,021	3,001	2,972	2,990		
1,198	1,102	1,105	1,129	1,199		
657	676	705	716	693		
1,013	1,036	1,092	1,044	1,066		
13,228	13,801	13,718	14,042	13,830	13,600	
4,223	4,284	4,245	4,312	4,290		
316	323	348	346	322		
1,133	1,123	1,123	1,125	1,049		
834	893	884	931	894		
1,844	1,939	1,970	2,097	2,052		
2,299	2,567	2,499	2,633	2,590		
471	451	451	n.a.	n.a.		
2,108	2,221	2,198	2,152	2,187		
43,938	47,433	47,967	48,555	49,060	49,100	
24,563	27,432	27,723	28,123	28,137	28,100	
3,197	3,677	3,688	3,770	3,678		
2,604	2,877	2,933	2,920	2,921		
8,010	9,094	9,292	9,523	9,506		
5,905	6,800	6,781	6,830	6,825		
1,755	1,792	1,812	1,850	1,887		
906	1,010	1,022	1,036	1,050		
2,186	2,182	2,195	2,194	2,270		
19,375	29,001	20,244	20,432	20,923	21,000	
4,358	4,391	4,448	4,467	4,598		
1,832	1,870	1,865	1,866	1,875		
2,398	2,457	2,492	2,526	2,652		
1,063	1,117	1,134	1,144	1,172		
3,039	3,361	3,407	3,479	3,536		
2,753	2,785	2,817	2,828	2,922		
853	979	979	n.a.	n.a.		
3,079	3,041	3,102	3,148	3,174		
27,044	26,912	27,758	28,785	28,135	27,100	
13,571	13,337	14,073	14,732	14,365	13,500	
13,473	13,575	13,685	14,053	13,770	13,600	

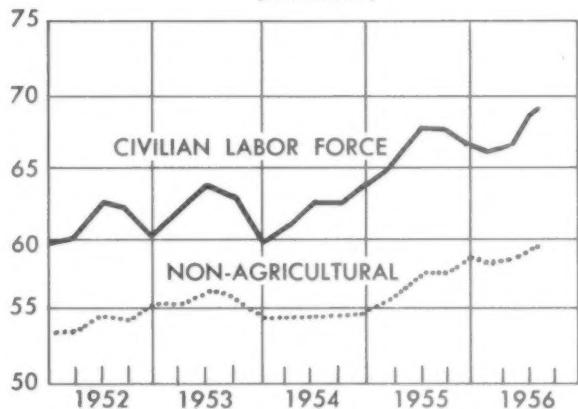
p — preliminary

r — revised

n.a. — not available



EMPLOYMENT (in millions)



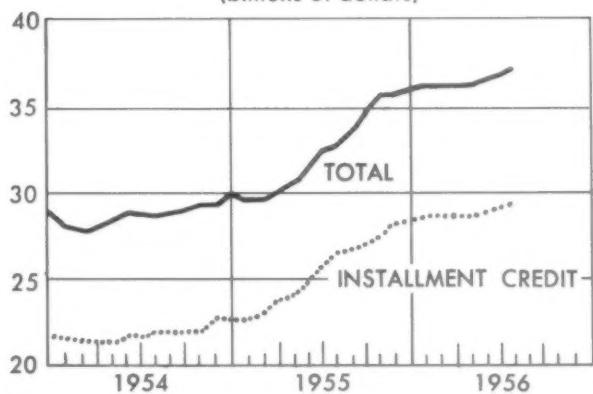
Source: Bureau of the Census

INCOME AND EARNINGS



Source: Departments of Labor and Commerce

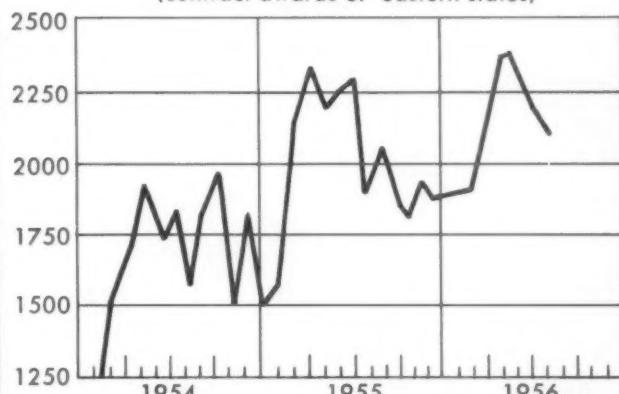
CONSUMER CREDIT (billions of dollars)



Source: Federal Reserve Board

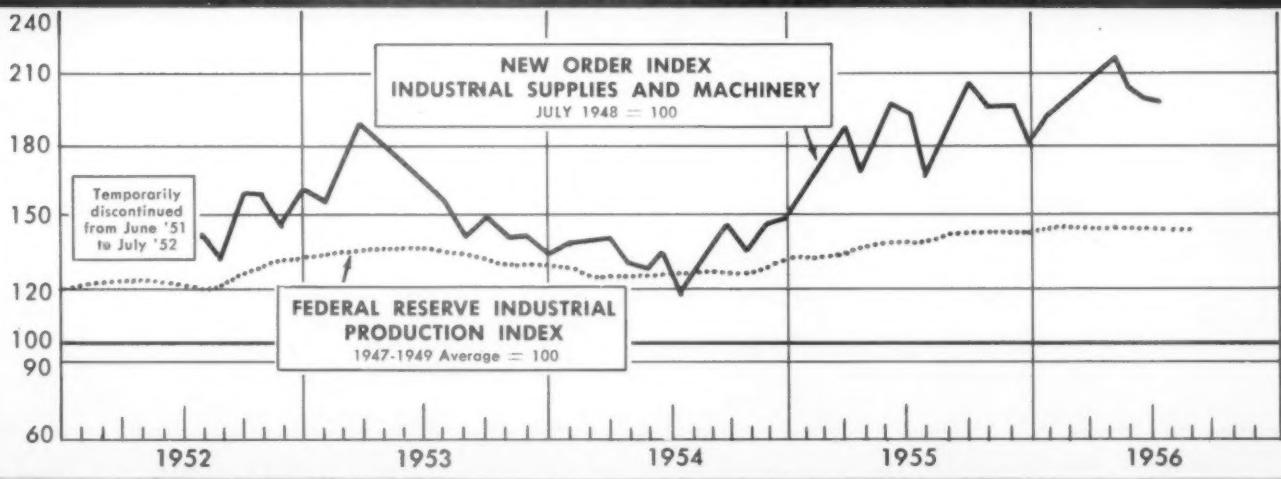
CONSTRUCTION

(contract awards 37 eastern states)



Source: F. W. Dodge Corporation

NEW ORDER INDEX INDUSTRIAL SUPPLIES AND MACHINERY



Source: American Supply & Machinery Manufacturers' Association

Straws in the Trade Wind

STEEL TIGHTER THAN EVER - There's no indication that the steel shortage will ease for at least three months. The pinch is particularly tight in structural shapes. The strike did more than cut off supply; it also slowed down expansion programs. Small consumers are especially bitter about the shortage. Many claim big companies are gobbling the lion's share of available tonnage. They're getting a sympathetic ear in Washington. There's even talk of allocation. Meanwhile, the more practical-minded talk of permitting steel companies to use fast tax-writeoffs on new capacity. If granted, this should help stimulate more expansion, which is the only real solution to the problem. Unfortunately, expansion needs steel. So the shortage may be temporarily made worse by the same action that will eventually lick it.

CONSUMER BUYING POWER UP - The annual Federal Reserve study shows consumers in better shape to buy autos and other durables this fall. Consumers' income has gone up much faster than their expenditures so far this year. The gap is now being closed. Department store sales are well over year-ago levels. Auto makers expect '57 models will push sales beyond last year's figures. Justifying their optimism is the fact that dealers' stocks are the lowest they've been in a year.

COAL BOOM HOLDING - The boom in soft coal, based chiefly on export demand, shows no sign of slackening. Some experts think coal exports may hit 100 million tons a year. That's 20% of present production. Economic development in South America, Europe and Asia makes for higher coal consumption. Though American coal costs them dollars, they have no alternative. The American coal miner's productivity is, through mechanization, 10 times greater than that of his British or West German counterpart. As a result, U.S. is the only country with surplus production.

NO LET-UP IN CONSTRUCTION - Despite a very tight credit situation, construction orders continue at record levels. Soaring costs naturally help boost dollar totals. But physical volume is also very high. Even home starts, which had fallen off because of the tight mortgage market have picked up. Starts are currently running at an annual rate of 1.11 million, compared with 1.07 million early last summer. If the economy shows any sign of faltering, the Federal Reserve Board can readily stimulate housing by making money easier.

Buying for an

"Office Production Line"

The purchasing department of a major insurance company has developed special techniques to meet the special responsibilities of a multi-million dollar office buying job.

GOOD PURCHASING of office supplies and equipment is important when the office is an auxiliary to the factory. It is an absolute necessity when the office itself is the *actual production line* of a company.

John Hancock Mutual Life Insurance Company, the eighth largest financial corporation in the country, has a purchasing department of 53 people to supply and maintain its huge "office production line" in its Boston headquarters. Indicative of the broad scope of the department's responsibility is the fact that only 10 of these 53 people are directly engaged in purchasing.

The remainder handle the following important services, all part of the purchasing function: stores-keeping, shipping and packing, receiving, repair and maintenance of equipment, control and disposal of salvage, field supply records, and accounts payable.

The department, headed by Purchasing Agent Grant G. Dwyer, issues about 15,000 purchase orders a year for approximately \$7,000,000 worth of supplies and equipment. About 20% of the figure represents expenditures for machines, and furniture. Another 20% covers purchases of paper, printing, and general office supplies.

The objectives of the depart-



John Hancock's Purchasing Agent Grant G. Dwyer, at desk, confers with other members of his staff (l. to r.) Assistant Purchasing Agents George E. Maskell, George E. Nicoll, and James F. Murphy.

ment are clearly explained in a statement of policy appearing in a recent annual report of the department:

1. To maintain and/or improve quality, buying neither more nor less quality than the end use justified.

2. To watch for and recommend new products or improvements to existing products.

3. To develop purchasing priority and effective public relations with suppliers. This involves allowing a reasonable profit, culti-

vating good will, showing loyalty to suppliers, and doing business with representative firms in each line.

4. To buy in economical quantities, which frequently means in larger quantities, with due consideration for available space and annual usage.

5. To aim for a desirable degree of standardization in order to reduce costs through volume buying.

Since the purchasing department buys such a variety of office



General view of the John Hancock purchasing office. Assistant purchasing agents are in the partitioned areas. The entrance and reception area are farthest from the camera.

Home office requests
for such supplies as
ink, ribbons, pencils,
etc. are made directly
to central supply on
this form.

District offices notify purchasing of their needs on this pre-printed form. Note special instructions at right.

items from more than 500 suppliers, a high degree of specialization is required of the three assistant purchasing agents and two buyers on the staff. These men are assigned buying responsibilities for specific commodities, and certain supervisory duties related to their specialization.

George Nicoll, assistant purchasing agent, buys office machines and equipment. In addition to this he has full responsibility for the office machinery repair shop and the steel equipment repair shop operations, and thus has knowledge of the performance of the equipment he buys.

George Maskell, assistant purchasing agent, primarily buys paper and envelopes. He has the responsibility for the receiving section and the accounts payable section. He also analyzes individual jobs and office procedures on the basis of special training he has had in this area.

James F. Murphy, assistant purchasing agent, who buys printing, also has responsibility for the operation of the storage and shipping operations of the central supply division and of supplying the four hundred odd branch offices of the company with forms and supplies.

The other two categories of purchasing are building supplies and salvage handled by John Fitzpatrick, and office supplies, miscellaneous and unusual items bought by William F. Nixon.

As indicated by the organization chart all functions are assigned variously to the three assistants leaving the purchasing agent free to supervise all operations of the department, to initiate special studies and analyses and to develop good vendor relations.

How Office Equipment Is Bought and Maintained

Purchases of office machines and equipment are made to rigid specifications established by the company to provide the utmost in operational advantages. All requisitions for such equipment are processed through the purchasing department. It is the buyer's responsibility to select vendors

for bidding, to evaluate all quotations, and to issue the order to the supplier he judges best qualified and prepared to meet John Hancock quality standards and delivery requirements. At any stage of the process of turning a requisition into an order he is free to seek the aid of the purchasing agent, but the ultimate responsibility for selection of the vendor, all other requirements having been met, is his.

Standardization

In a company the size of John Hancock a carefully planned and executed program of standardization is necessary. The insurance company maintains such a program through the activities of a standardization committee, with the result that purchasing of equipment has been simplified and a high degree of quality has been maintained.

The committee is composed of the purchasing agent, the director of planning, and a representative of the budget committee. Regular meetings are held and decisions made in regard to standardizing on certain items. As standards are established, they are published in the company's growing standards manual, and then become mandatory throughout the company, with certain exceptions permitted in special situations.

Desks for all executives, supervisors, etc. occupying enclosed offices, are standardized at the Boston office in respect to material and size. They must be wood, and their dimensions are based on the position or job title of the user. Two styles, and two finishes, however, are available to the user for his personal choice.

In general offices and open areas, steel desks are standard. Again, sizes are allotted according to job title.

User comfort is given consideration in setting standards for office chairs. Three styles are available, and users are permitted to make their personal selection from that group. Purchasing keeps one of each style available in the department so that users may inspect and test them before making a selection.

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A complete history of each of the company's thousands of office machines is carried in purchasing. Daily reports of repairs on individual machines are received from the repair shop daily and entered on the history forms.

Other standardized items include files and carpeting, a supply of the latter being kept in stock to meet new or emergency requirements.

Machine Repair and Maintenance

Two important activities under the purchasing department's jurisdiction have brought important savings to John Hancock and have enormously improved the procurement of machines and equipment. These are a six man shop for machine repair and maintenance, and a four-man shop for repair, modification and fabrication of equipment.

Formerly, John Hancock's machines were serviced and maintained through contracts with various manufacturers. As the company grew, however, and more equipment was added, this



Part of the central supply division where stores for the whole company are maintained.

This form is sent to purchasing both by central supply for replenishing stock, and by district offices for special requirements.

method became expensive and inefficient.

By setting up its own skilled mechanics who service and maintain over 40 different types of machines, the company has saved many thousands of dollars each year. An important phase of the operation is a planned program of regular inspection, overhaul and repair, to keep machines in top

condition. Service life of typewriters, for example, has been increased to 12-15 years, by the system. And the preventive maintenance program has reduced expenditures for major repairs and parts. Since the home office alone uses 1900 typewriters of several makes, the opportunities for big savings are obvious.

The shop for repair and fabri-

An important activity of the steel mechanics' shop is the adaptation of standard equipment to meet special John Hancock specifications.



cation of steel equipment has provided purchasing with a freer approach to handling requisitions for such items than was heretofore possible. In some circumstances the shop can be another source of supply for an item. Since anything made or modified in the shop is done so strictly according to company specifications, purchasing is in a safe position to decide whether to "make-or-buy" on a wide number of items.

When purchasing receives requests for specialty items, it follows its usual practice of surveying the field for standard equipment that could handle the job requirements involved. It may buy standard equipment and have it modified for special use, or decide to have the item built from scratch.

Forms Buyings and Stores Control

About 75% of John Hancock's printing requirements are met by a company-owned plant, which gives purchasing a good basis for analyzing price, quality and service performance of those several vendors who supply the balance.

Complete records on all vendors are kept in purchasing, and provide immediate information on what company can do a particular job within a specified time. In view of the hundreds of forms and millions of units consumed by a large insurance company, strict control and constant attention to keeping these records up-to-date are absolutely vital.

To assist shops doing specialized jobs and to insure against costly delays, purchasing arranges with these vendors to keep some paragraphs of copy common to several forms standing in type. The copy and the type used in them are coded, thus making it easy to enter specifications on print orders. This saves considerable time both in preparing orders and in the final make-up and printing operation.

How Stores are Controlled

The stores control section for forms comes under purchasing's jurisdiction and works closely with it to meet daily requirements and prevent stock outs.

Requisitions for supplies come through purchasing, which keeps a record of consumption, without regard to present stock levels. The requisitions are forwarded to central stores for filling. Central stores keeps check on daily stock levels, and issues purchase requisitions to purchasing in order to maintain proper inventory.

Minimum stock levels have been specified for each individual form in use, based on purchasing's record of consumption, and central stores' record of turnover. Levels are set at a point that will insure sufficient coverage of lead times. Most forms are stocked on the basis of a three month's supply. One of the advantages of keeping inventory at relatively low levels is the flexibility it gives in form design. The planning department, where forms are designed and revised, rarely has to worry that changes will necessitate the destruction of large quantities of obsolete material.

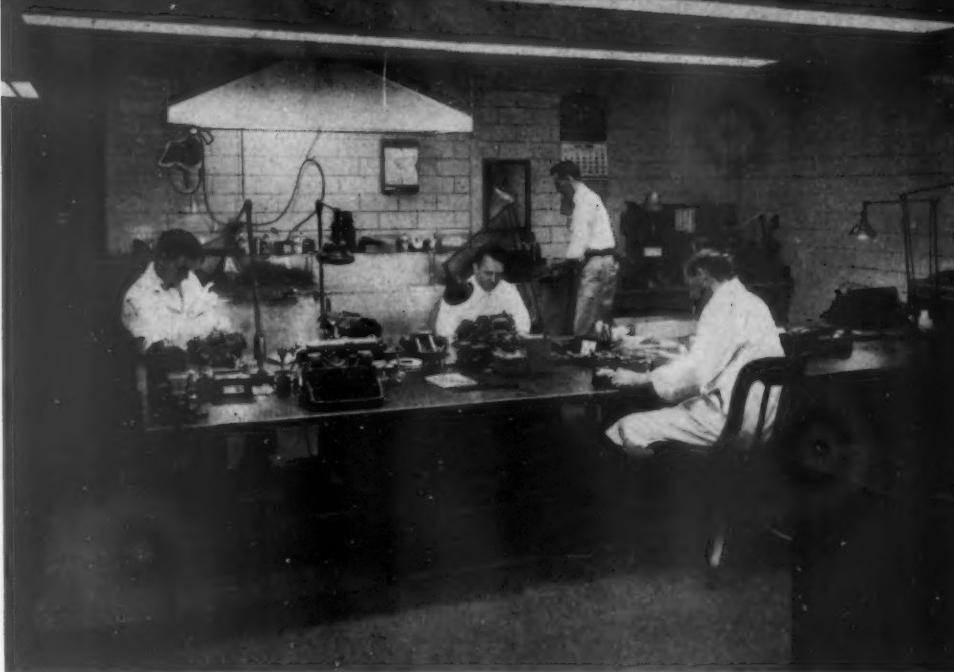
Special Techniques In Office Buying

In developing its highly specialized system John Hancock's purchasing department has developed a number of techniques either completely peculiar to office buying, or adapted from standard industrial buying procedures.

One is the recording of basic information about every office machine in the home office. The forms show make and serial number, location, date purchased, date received, and the date and nature of all repairs. The last item of information is posted from repair record cards which are received daily from the repair and maintenance department. This complete record enables the purchasing department to evaluate requests for replacement, and is an excellent guide to possible downgrading of the machine to another job.

Vendor Records

Each buyer maintains his own purchase records. There is, however, a central record kept on every vendor, showing the volume of business done with him. This exists primarily as a guide to spreading business among ac-



All office machines are repaired and overhauled in this shop. Purchasing keeps a record of all repairs on every machine.

ceptable suppliers. This record is now being expanded to the point where the following information will be listed for every vendor:

Name; name of representative; past performance on price, quality and service; any complaints of users of the purchased items; and the findings of any investigations of such complaints.

John Hancock approaches office

buying with the same attitudes a comparable company in the manufacturing field would. Hence, cost reduction or value analysis is pursued with the same diligence as it is in industry generally. Each individual in the department understands his obligation to study both his procedures and the products he buys to see if unnecessary cost can be cut out of

(Please turn to page 392)

REQUEST FOR QUOTATION					
NUMBER	DATE				
<small>THE ABOVE NUMBER MUST APPEAR ON ALL QUOTATIONS AND INVOICES ISSUED BY THE AGENCE</small> THIS IS NOT AN ORDER					
QUOTE NOT LATER THAN	REQUESTING AT	DATE OF QUOTATION	CHARACTER ACCOUNT NUMBERED	P.O. NUMBER	
VENDOR	ITEM	SUMMARY OF QUOTATIONS BY QUANTITY			
QUANTITY REQUIREMENTS		DELIVERY PERIOD	TERMS	P.O.	
ITEM	QUANTITY	DESCRIPTION			UNIT PRICE
					AMOUNT

A four part request for quotation has space for three replies. Only one vendor name appears on each copy. Top sheet acts as recapitulation of quotations.

Organizing A Small Department

How purchasing adapted its administrative and clerical operations to a growing company's needs

QUOTATION REQUEST—Purchasing at Globe Industries believes in competitive buying whenever possible. With this four-part snap-out it's possible to issue quotation requests to three competing vendors with a single typing.

PURCHASE ORDER—Globe's purchase order doubles as a receiving report. Vendor's copy and acknowledgment copy are only 8½" wide to fit a standard size envelope. The extra space on the colored follow-up copy is used to post receivals.

WHEN Purchasing Agent John Trostle joined Globe Industries Inc. of Dayton, O. five years ago, the company had but 40 employees. Purchasing was a "one-man show" and only the most informal procedures were needed. Since then demand for the company's small and precise electrical components for aircraft has mushroomed. Currently Globe employs about 350 people. There are now five people in the purchasing department — Purchasing Agent Trostle, two buyers, a secretary, and a clerk.

Both the company and its purchasing department have had plenty of opportunity to develop "growing pains" in the last five years. Such rapid expansion makes for lots of problems in getting the personnel and the facilities to do the job. Not the least of these problems is organization. A business employing 40 people can operate on a very informal basis. Not much paperwork is needed; most problems can be worked out by verbal agreement.

A different approach to organization is needed when a company grows to 350 people. Though it's still a long way from becoming a bureaucracy, a more formal organization is essential to both current operating efficiency and future growth. Each function must be clearly defined; a lot of information that was formerly transmitted verbally must be put in writing.

The organizational changes that come with growth aren't easy to make; they're a challenge to every department in the company including purchasing. Purchasing, in

for Better Buying

particular, has done more than just meet this challenge. Besides handling a steadily expanding volume of work and recruiting and training the staff to do the job, it has taken the initiative in organizing activities that more or less took care of themselves when the company was smaller. A good example of purchasing's initiative is its handling of office supplies. When the company was very small, each user more or less stocked his own supplies and called on purchasing to buy more when he ran out. As the office force grew, this practice created problems. Purchases were difficult to plan and supplies were exhausted at inconvenient times. Purchasing solved the office supply problem by setting up, within the purchasing department, a central stationary inventory to supply the whole office.

Although it does get involved in extra activities like the handling of office supplies, purchasing spends most of its time on its basic assignment — buying the parts, materials, and services needed to keep the shop operating. This basic job is a big one in itself. Currently purchasing is issuing about 800 orders per month for about 2,000 different component parts plus the many expense and equipment items needed by the shop and office. Purchasing's responsibility doesn't end with the placing of the order. It has full responsibility for follow-up and checking of invoices. In addition, because many of the parts are made to close tolerances, it must spend a great deal of time on quality problems. Because of the rapidly

FOLLOW-UP TICKLER—One of these cards is made up for each vendor with whom Globe does business. Cards are filed by date when it's felt follow-up on any one of the orders listed is required. On that date, the order is pulled from file and goes with the card to the buyer for action—and possible entry of a new follow-up date.

changing technology in the aircraft industry, engineering changes are also a major problem.

With this assignment, there has obviously been plenty of opportunity for purchasing to develop "growing pains" in the last five years. Mr. Trostle's "medicine" for preventing them has been and continues to be good organization of routine work. Procedures are probably well enough developed now that the company could keep growing at its present rate for another five years before basic changes are necessary. In fact, there are companies with several thousand employees whose purchasing activities are not as well organized as they are at Globe Industries.

Highlights of Globe's purchasing procedures include:

1. A cross-referenced catalog file that makes it easy to find the right catalog whether you are interested in a particular product or a particular company.
 2. A system of controlling in-

ventories of stationery and other office supplies that minimizes record-keeping and makes it almost impossible to run out of stock.

3. Records that make it hard to do anything but a thorough buying and follow-up job.

Catalogs Kept Systematically

"Let me look for that catalog . . ." In many companies, this statement by a buyer is a prelude to an item-by-item search through a big pile of catalogs to find the right one. Sometimes a buyer can waste a half-hour locating the catalog in which he's interested. This is not the case at Globe; there a buyer can locate a catalog in seconds. All he need do is refer to one of two card files. In one card file, there is a separate card for each commodity on which there are one or more catalogs. In the other, there is a card for each vendor and on it are listed all the catalogs of that vendor that are on file.

Table I
Catalog File Classifications

Commodity	Key Numbers
Shop Equipment	1-499
Machinery	500-999
Small Shop Tools	1000-1499
Inspection Equipment	1500-1999
Electrical Test Equipment	2000-2499
Raw Materials	2500-2999
Hardware	3000-3499
Wire	3500-3999
Plastic Parts	4000-4499
Electrical Components	4500-4999
Mechanical Components	5000-5499
Office & Drafting Equipment	5500-5999
Office & Drafting Supplies	6000-6499

The catalogs themselves are identified by a key number which is listed in the card files and is marked on the catalog itself. The catalogs are kept in standard office bookcases by key number. By assigning a given block of key numbers to a general commodity classification, it's possible to keep catalogs for similar products in close physical proximity in the file. For example, the key numbers between 500 and 999 are assigned to machinery. If a new catalog is received from a machinery manufacturer, it's assigned a number between 500 and 999. Then the manufacturer's name, the product description in the particular catalog, and the key number are posted to both the subject and vendor card files. The key number is noted on the catalog which is then put in the bookcase in numerical order by key number. Table I on this page shows the breakdown by commodity.

Good Records Essential

According to Purchasing Agent Trostle, "good records are mostly a matter of having good forms and

knowing how to use them." As has already been mentioned, Globe could get along with very simple forms not too long ago. For example, it used to use a book type purchase order that was filled out by hand. As the company grew it became essential to develop forms and procedures to handle the greater volume of work. Currently, none of the forms used by Globe are more than a few years old. The latest ideas have been incorporated in their design. Particularly interesting are Globe's purchase order, purchase record card and the forms involved in its follow-up system.

Purchase Order. Globe uses a 7-part purchase order form that doubles as a receiving report. The first two copies of the order—the vendor's copy and the acknowledgment copy—measure but 8½" x 8½". They are deliberately made smaller than the other copies so that they will fit into a standard-size envelope for mailing without extra folding. The other copies measure 8½" x 10½". They're designed to fit into a letter-size filing cabinet. The extra

PURCHASED PARTS RECORD—
One of these cards is made out for each purchased component. It provides a complete record of prices, commitments, tooling, engineering changes, set-up charges, rejection information, etc.

space is used to post follow-up and receiving information.

Receiving gets one more copy of the purchase order than it would with the typical combination purchase order and receiving report. If the order isn't complete in one shipment, receiving can use the extra copy for a second receiving report. Most orders are complete in one or two shipments. When they aren't, receiving writes out a separate supplementary receiving report.

Follow-up for Delivery. The key copy of the order as far as purchasing is concerned is the follow-up copy. While the order is open, it's filed by vendor and then by order number. To it is posted all information on follow-up and expediting action as well as all receipts. Thus, it's used both by the buyer and by the girl who checks invoices and receiving reports.

For follow-up, it's essential that information be filed by date. For invoice checking, it's helpful to file by vendor and order number. Since one copy of the order is used for both purposes and since this copy is filed by vendor, a supplementary follow-up form is needed. Globe uses a simple 3" x 5" card for this purpose. A different card is made out for each vendor. On it are listed the open orders with the vendor and the follow-up dates. The card is filed by the date of the earliest follow-up. When the card is pulled on this date, the order is pulled from file and given to the buyer for follow-up. The buyer notes his follow-up on the back of the order, indicates a new follow-up date on the tickler card, and both forms are then re-filed. Some companies use separate copies of the order for follow-up and for invoice checking. Globe likes its system because:

1. A complete record of the transaction winds up on a single copy of the order.
2. The buyer is freed from the time consuming job of fishing through his own tickler file looking for orders that should be followed.
3. The 3 x 5 tickler card is easier to file and handle than a 10½ x 10½ copy of the purchase order.

OFFICE SUPPLY REQUISITION
ONE ITEM PER REQUISITION

Date _____ Requested by Dept. _____

Stock No. _____ Description _____ Quantity _____

Deliver to _____

DO NOT WRITE BELOW THIS SPACE

Location _____ Request Complete _____

Order Filled By _____ Partial of _____ Del. Date _____

Form No. 185

CONTROLLING OFFICE SUPPLIES—This form is used by other departments to requisition office supplies from the stock kept in purchasing.

Purchase Record Card. When you're buying precision parts, you've got to know a lot more than just the names of available sources and their prices. Records must be kept of engineering changes to make sure vendors are quoting on the latest prints. Often, special tooling is required; in many cases, it's just as important cost-wise as piece price. Information on quality and a record of rejection information is extremely important since, in many cases, the lowest cost vendor is the one with the lowest rejection rate.

Globe buys a lot of high precision parts so careful records are a must and they must include all available information on engineering, quality, and cost. It does this job the easy way; all information for any one part is kept on an 8½" x 11" buy record card. The cards are filed by part number for ready reference. Up-to-date records such as this make it hard to make mistakes in judgment when placing new business or when resolving problems on engineering changes, quality, delivery, or price.

As has already been implied,

purchasing does more than just buy office supplies. It also controls inventory and, in effect, requisitions them. Thus, it does the job that would come under the office manager or the manager of administrative services in those larger companies that could economically make use of a specialist in office procedures and methods.

Purchasing has successfully taken on the additional assignment of controlling office supplies without additional help only because it has deliberately kept procedures very simple. Minimum stock levels are set for each item based on past usage. The minimum stock is physically marked in stores by attaching a re-order ticket to it. When this stock is opened for use, the ticket goes to the buyer and he issues an order.

Only the highlights of Globe's forms and procedures have been mentioned in this article. But they do illustrate how purchasing can make genuine contributions to the growth of a small company. Only with good buying procedures can purchasing have the time to take on such projects as controlling office supplies, etc.

A Check List for Analyzing Forms

GENERALLY, purchasing agents are concerned with the design of forms only when they are to be used in the department. Otherwise, their responsibility for company-wide forms will usually cover ordering, delivery, inventory levels, specifications and other buying elements.

Forms control and purchasing, however, are too important not to be analyzed from every point of view by everyone concerned with their procurement. Whether you are buying for a small company, where you may be both a de facto forms control man and purchasing agent, or for a big company with its own forms control department, you have an opportunity to apply value analysis techniques to forms purchasing.

The following check list, developed by the Office Standards Department of Westinghouse Electric Corporation several years ago, is a good start in developing tests for forms value. It will enable purchasing to evaluate its own forms and to question intelligently all requisitions for forms from other departments.

Necessity

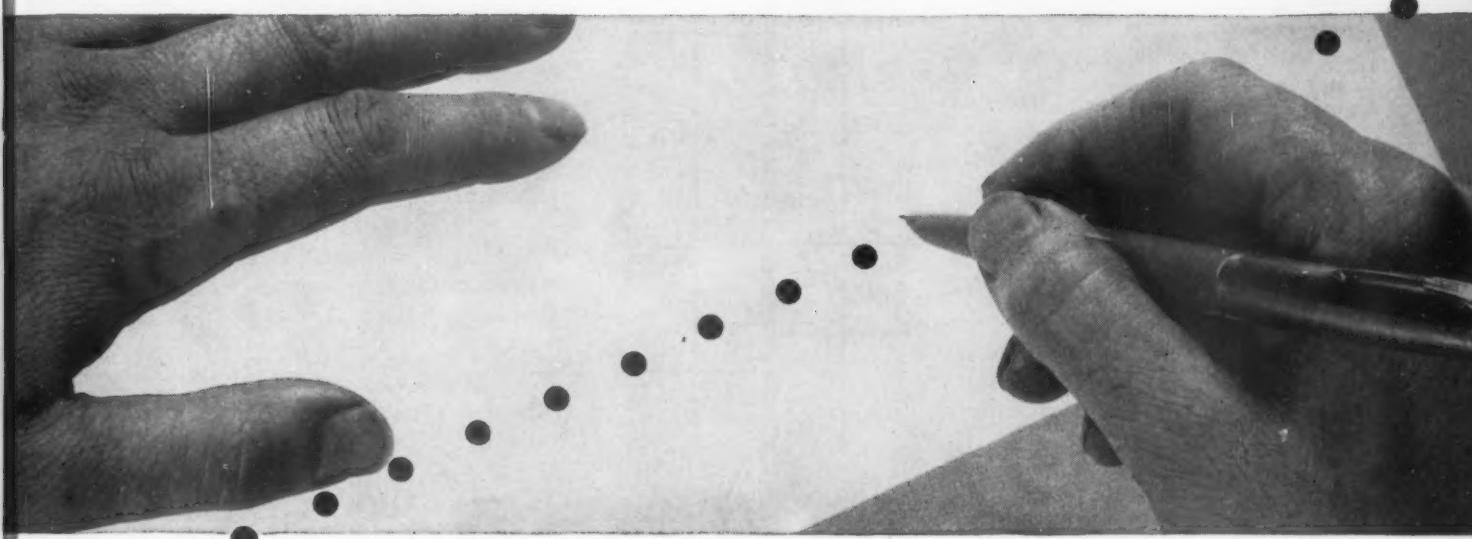
- 1 Has the entire system been checked, and a procedure written, making clear the purpose and routine of this form?
- 2 Is this new form necessary? Or is there some existing form which could be adopted as is or with some revisions?
- 3 Can the data furnished by this form be combined with some other form, or can some other form be eliminated by or consolidated with this form?

YES	NO	YES	NO

- 4 Could the period covered be lengthened from daily to weekly, to monthly, etc.?
- 5 Are all copies necessary? Could a copy be routed from one department to another and thereby eliminate one or more copies?
- 6 Have the actual users been consulted for suggested improvements? Has everyone responsible for the form system approved it?

For More Information Circle No. 209
on Inquiry Card—Page 17→

Before you sign your new contract for caustic soda



Right now is the time—before you make your new contract commitments—to carefully review the form of caustic soda you plan to buy.

If you have been buying flake or solid, you may find it a profitable move to switch to liquid.

On the other hand, if you have been buying 50% liquor, you may save substantially by converting to 73% concentration.

Naturally, your location and the volume of caustic soda you use will affect how much your savings may be. But only an up-to-date analysis can tell. Changes in freight rates or changes in your own operation in recent years may have altered drastically the most economical form of caustic for you.

So, before you make your new commitments, consult Columbia-Southern's Technical Service Department. A staff member will be assigned to

review the whole picture and to help you determine the most advantageous form of caustic soda you should buy.

Write, wire or telephone our Pittsburgh office today.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION **SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY**

ONE GATEWAY CENTER • PITTSBURGH 22 • PENNSYLVANIA



DISTRICT OFFICES: Cincinnati • Charlotte
Chicago • Cleveland • Boston • New York
St. Louis • Minneapolis • New Orleans • Dallas
Houston • Pittsburgh • Philadelphia
San Francisco

IN CANADA: Standard Chemical Limited and its
Commercial Chemicals Division

Design

- 7 If a hectograph form is contemplated, are you certain that it is necessary to use the hectograph process to secure the number of copies that are absolutely required?
 - 8 Is the size a standard, and not any larger than necessary? Is it practical from a filing, mailing and handling standpoint?
 - 9 Have sufficient margins been allowed for printing, office machine fill-in, duplicating, binding and filing?
 - 10 Will routing or handling instructions printed on each copy be helpful?
 - 11 If an external form, should it be designed for use in a window envelope?
 - 12 Should it be designed as a self-mailer?
 - 13 Is the spacing, both horizontally and vertically, correct for fill-in?
 - 14 Is the form design streamlined for straightaway typing, minimum number of tab stops, roll-backs and carriage returns?

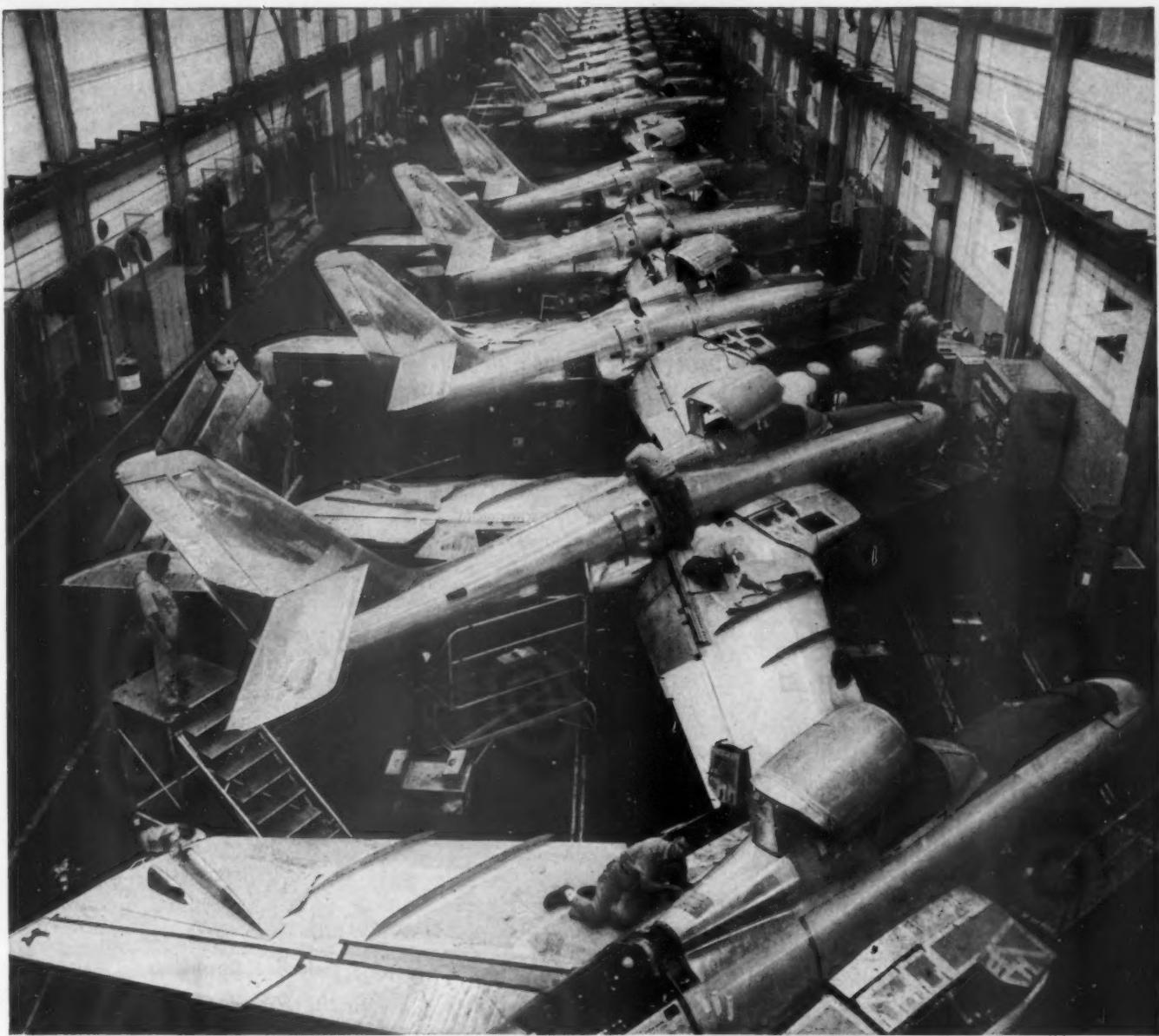
- 15 If this form is to take information from or pass information to another form, are the forms coordinated? Be sure to show the form number of these forms on the questionnaire.
 - 16 Does the title of the form clearly but briefly indicate its purpose?
 - 17 Would consecutive serial numbers serve a useful purpose?
 - 18 Is there a space for date of issue, and is it properly located?
 - 19 Is all fixed information to be printed, so that only variable items need be filled in?
 - 20 Are items properly grouped for other departments to fill in or refer to?
 - 21 Are items properly located to make reference easy when filed or bound?
 - 22 Are the important items properly emphasized by prominence and location?
 - 23 Have spaces been provided for signatures and approvals with date spaces for each?
 - 24 Have you indicated the number of digits or typical fill-in (use colored pencil)?

Specifications and Volume

- 25 Are detailed printing specifications complete? (Such as punching, perforating, numbering, padding, proofs, samples, etc.)
 - 26 Is the quantity being ordered consistent with the actual requirements and with full allowance for initial distribution?
 - 27 If hectograph is involved, has consideration been given to deterioration? (Normal supply—six months)

YES	NO	YES	NO

- 28 Has an order point been properly established with due regard for the time required to secure a new supply? (Depends on type of form and source of supply.)
 - 29 Has disposition of old and/or superseded forms been indicated?
 - 30 Will samples or proofs be needed for distribution? If so, how many?



USAF fighters—RF-84F Thunderflashses—on Republic Aviation Corporation production line

FIRST with the aircraft industry ...NIBROC[®] TOWELS



The Nation's great aircraft companies use more Nibroc Towels in their washrooms than any other paper towel.

It's the same way with business, industry and institutions all over America.

1. Nibroc Towels are tailor-made to fit your hands.
2. Come from cabinet flat and ready to use instantly.
3. Available in various sizes—in either white or tan.

4. Only with Nibroc—can you get the exclusive TAMP[®], which slashes maintenance costs, ends washroom mess, reduces fire hazard. Packs *five times more* waste in receptacle.

5. Ask us to prove guaranteed savings with Nibroc "3-T Thrift Plan"—Towels, TAMP, Tissue. Lowest annual cost per employee.

6. See TAMP in action! Ask your dealer; he's listed under Paper Towels in the Yellow Pages. Or write Dept. GN-10, Brown Co., 150 Causeway St., Boston 14, Mass.



NEW NIBROC TAMP . . . Pull out towel. Step on pedal. Drop towel in chute. TAMP does the rest.

Intermediate Univac Solves Purchasing Problems

An electronic data processing technique that is used for an automotive assembly plant's operation can be adapted to other fields to reduce greatly purchasing's paperwork.

By Joe Crabtree

Director of Applications, Remington Rand Univac Divn., Sperry Rand Corporation

ELECTRONIC DATA processing drastically reduces the huge amounts of paperwork which have always taken up so heavy a proportion of the purchasing agent's time.

A case in point is the Remington Rand Univac File-Computer. The applications described here are for an automotive assembly plant. But they can be applied readily to almost any industrial need. The File-Computer, an intermediate-price-and-size system in the Univac line, is easily adapted to any field.

System Adaptable

The application described will supersede a comprehensive punched-card procedure which has been turning out detailed delivery schedules on vendor releases in a little under two weeks. This work will be accomplished on the File-Computer in less than three days. In this case the system will work with punched cards. It can also handle paper perforated tape, metal magnetic tape, and a variety of direct input-output machines.

The entire task is finished by only two computer routines. (A routine, in computer language, is the series of instructions to the system required to complete one specific part of a problem; the sep-

arate routines put together embrace the entire problem.)

First, the bill of materials is exploded for each major assembly. The total needs for each part or component are determined for the current month as well as the future according to the latest revisions of production plans.

The computer then adjusts the gross requirements by period to provide for: introducing and discontinuing parts at given usage points; insuring a bank or cushion of working stock on hand, computed in terms of current usage rate; expediting parts in short supply; eliminating overstock acquired through changes in production plans; scheduling deliveries by week for the immediate months ahead.

The unit's magnetic "memory" storage contains the bill of materials (B/M) unit record for the particular assembly. In this case, B/M unit records are stored on three large magnetic drums. These are "addressed" or referred to, at electronic speeds in the process of exploding the requirements for each part or component listed on the bill of materials.

The B/M unit record is subdivided into data for each of eight parts, and for an overflow address or data location. For each part, the B/M unit record supplies a

drum address used by the computer in looking up the related parts requirements and inventory (PR) unit record, and the quantity of that part used in producing a single major assembly. There are 16,800 PR records, stored on seven drums, in this application.

Handles Dual Job

With the PR records, the computer extends and accumulates the gross requirements for each production period. This is added to any previously accumulated requirements of the part for that period, reflecting usage of the same part in other assemblies. If the assembly requires more than eight parts, the computer automatically refers to the overflow address, which tells it where to find the next B/M unit record. Thus, the File-Computer's random-access feature enables it to handle the dual job of exploding the bill of materials and accumulating the parts requirements in one push-button operation.

For each part or component, a card deck is prepared beforehand containing only control information and delivery dates. These card decks may be fed to the computer in any sequence of parts, so that the important parts can be processed first. The computer out-

MORE FACTS on why more and more leading manufacturers choose Link-Belt bearings

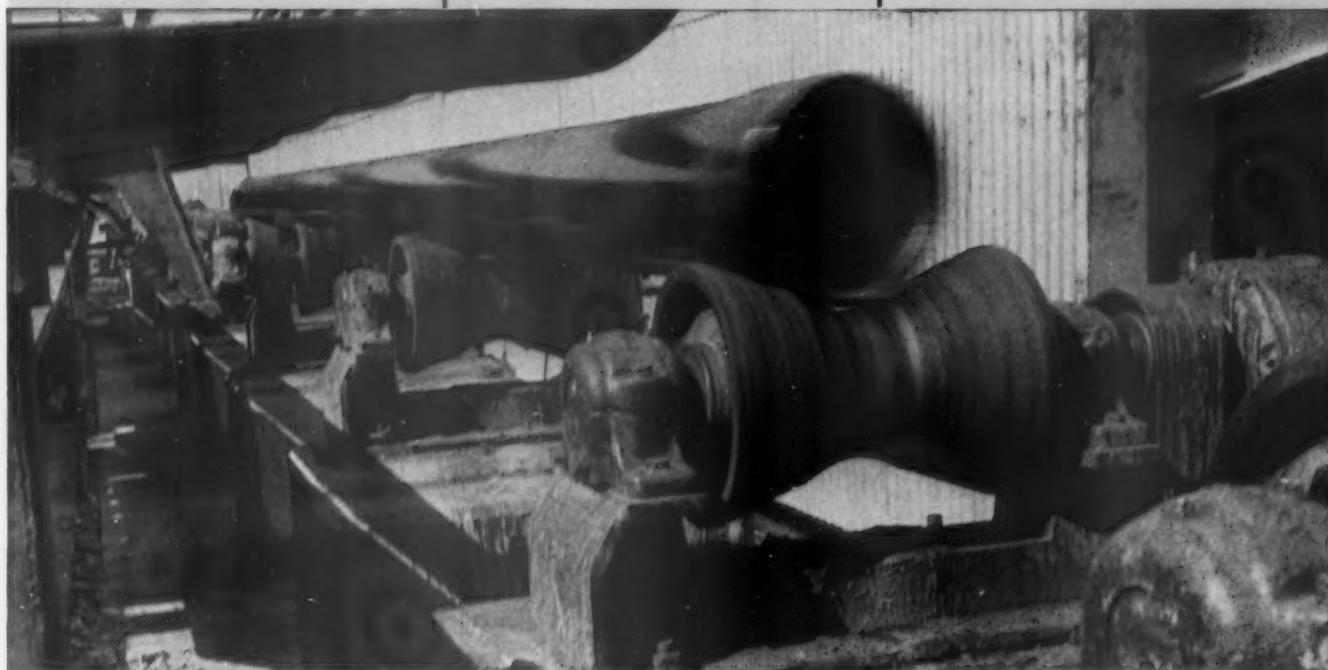
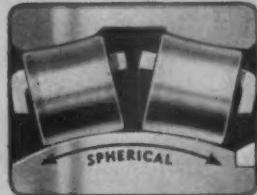
SUPER-RUGGED CAST STEEL HOUSING. Proper positioning of cap on base is assured by large-size dowels. Four heat-treated thru-bolts and serrated steel nuts firmly clamp cap and base together.



CHOICE OF SEALS. Spiral labyrinth steel seals, left, are for oil or grease lubrication and heat conditions. Combination felt and synthetic rubber contact-type seals, right, for grease lubrication.



SELF-ALIGNING ROLLER BEARING is self-contained and adjusted at the factory—needs no shims or alignment rings at installation. Design assures free rolling under even the toughest conditions.



Link-Belt "Mill Bearings" with cast steel housings withstand severe impacts and heavy loads in this modern pipe mill.

"Mill Bearings"

with cast
steel housings

designed by Link-Belt to take industry's
heaviest loads and hardest impacts



"Mill Bearings"
are now available
for shafts up to 11 in.

- To stand up to the sudden shocks and impact loads met in steel mills, mines, foundries, oil field applications and on heavy equipment, Link-Belt has designed the extra tough "Mill Bearing." It's the precision Link-Belt self-aligning roller bearing mounted and protected in a durable cast steel housing.

Thoroughly-proved Link-Belt "Mill Bearings" maintain full load capacity even with shaft deflections and misalignment often existing in extremely heavy service. And their simple, efficient design assures long

life and free rolling.

Link-Belt makes industry's most complete line of ball and roller bearing blocks. So whatever you need, you'll find the answer in this quality line. Ask any of the 40 Link-Belt offices or an authorized stock-carrying distributor for Data Book 2550 and Book 2565A on "Mill Bearings."

13,892

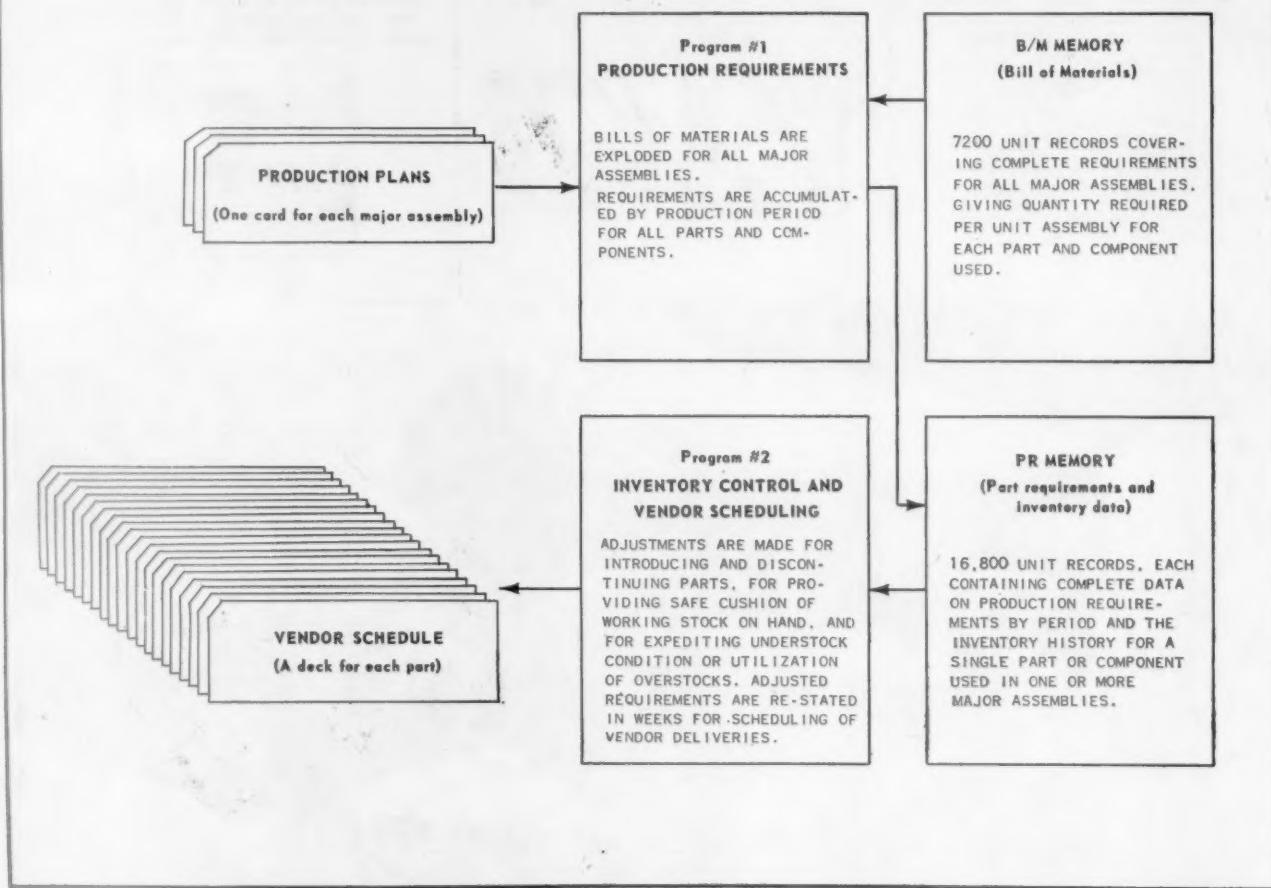
LINK-BELT

Ball and Roller Bearings

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office: New York 7; Canada, Scarborough (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

For More Information Circle No. 211 on Inquiry Card—Page 17

MATERIALS CONTROL WITH THE UNIVAC FILE-COMPUTER



put supplies the complete data, punched into the cards, for tabulation of vendor delivery schedules.

The computer refers to the related PR unit records, and punches out the date and quantity of the latest shipment of that part received. Inventory computations are made, consisting of adding accumulated receipts to quantity at last physical inventory, and deducting scrap and scheduled usage to end of month, arriving at net inventory. The date of the last inventory is stored in the computer's "memory," and is now punched out along with total receipts of that part since last inventory. Then come the computations for in-out changes and bank needs.

In this connection, the system can handle a variety of situations. In this application, for example, parts are introduced into production, or discontinued, at pre-deter-

mined quantity usage points. It might be planned to use 1,000 of experimental part A in place of standard part B, the temporary substitution scheduled to take place at the point where total usage of part B is 125,000 (counting from last physical inventory). In this case, part B would have an out-change point of 125,000 and an in-change point of 126,000. Work such as this requires a high level of programming versatility, achieved through special computer techniques for the re-use of steps with logical variations.

Inventory Tested

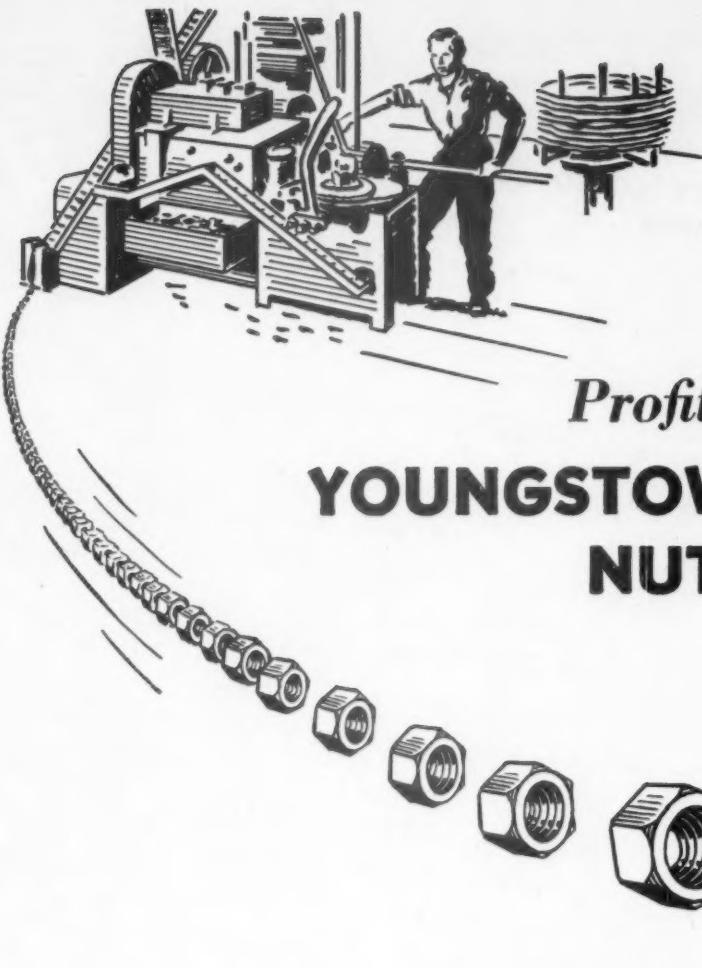
Bank needs are determined in terms of months or fractions of a month. Then, requirements for the next month determine unit quantity of bank needs for the part at the current usage rate. Since the bank is required only for the period of scheduled usage of the part, the bank needs are

deducted from the requirements for later periods.

Net inventory is tested against the bank needs. If it's less than bank needs, the difference is punched into a card as a rush order. If net inventory exceeds bank needs, the balance is stored as an overstock to be used in reducing requirements of the earlier periods.

Next, for the first-month card, the computer divides the adjusted next-month requirements by four, to arrive at weekly requirements. Any remainder is stored and applied to the weekly figure for the fourth week of the month. For each of the four weekly cards, a test is made for overstock; any overstock balance is progressively reduced before deliveries are scheduled. The same process is repeated for the second month.

As the card decks are punched with this data, they can be merged with the heading cards for vendor



Profits rise when you put
**YOUNGSTOWN SCRAPLESS
 NUT WIRE on the job!**

"Production up — rejects down which increased our over-all profit." We hear this story over and over from leading cold heading operators who specify and rely on Youngstown Scrapless Nut Quality Wire. It comes to your shop free from all piping, injurious seams, laps, die marks, internal tearing and cupping, and non-metallic inclusions—all of which defects skyrocket your reject rate.

Remember, because Youngstown controls all its processes, from ore mining to bundling

of the finished wire, it's your guarantee for a continuous production of high quality, brightly polished nuts. Its smooth, strong coating prolongs die life thus minimizing costly die replacements.

Youngstown Scrapless Nut Quality Wire is immediately available in standard AISI as well as special resulphurized steels. Also, Cold Heading Bolt Wire, of the same high Youngstown quality, is supplied in all standard carbon analyses. Phone or write today to our nearest District Sales Office for any additional help or information.

Youngstown



SCRAPLESS NUT QUALITY WIRE

THE YOUNGSTOWN SHEET AND TUBE COMPANY

General Offices Youngstown, Ohio District Sales Offices in Principal Cities.

Manufacturers of
Carbon, Alloy and Moly Steel

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT -
MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - WIRE - HOT ROLLED RODS - COKE
TIN PLATE - ELECTROLYTIC TIN PLATE - BLACK PLATE - RAILROAD TRACK SPIKES - MINE ROOF BOLTS

For More Information Circle No. 212 on Inquiry Card—Page 17

VENDOR DELIVERY SCHEDULE			
XYZ COMPANY			
TO VENDOR	FACE STEEL FORGING CO INC 2734 108 STREET PITTSBURGH PENNSYLVANIA		
PART NUMBER	PART	DESCRIPTION	
NO 63782	REAR AXLE HOUSING		
REMARKS			
		LAST RECEIPT	DATE
		0421	7000
		TOTAL RECEIVED SINCE LAST INV.	123154 20000
		RUSH	6410 26410
		DELIVER FOR WEEK OF	060655 30660
		061355	4250 34910
		062055	4250 39160
		062755	4250 43410
		070455	5250 48660
		071155	5250 53910
		071855	5250 59160
		072555	5250 64410
		AUGUST	19000 83410
		DELIVER FOR THE MONTH OF	19910 103320
		AUTHORIZED PURCHASE OF RAW MATERIALS FOR LATER DELIVERY	
		TOTAL ORDERED	103320

This is the final product: an automatically produced schedule of vendor deliveries including rush orders, weekly deliveries for next two months, total required for third month, and total scheduled later months' requirements.

names on open-end items, which would include vendor address and part description. These go directly to the Tabulator, which prints the vendor schedules, completing a very nearly continuous process. All vendor schedules can actually be in the mail room within an hour after the last card is punched.

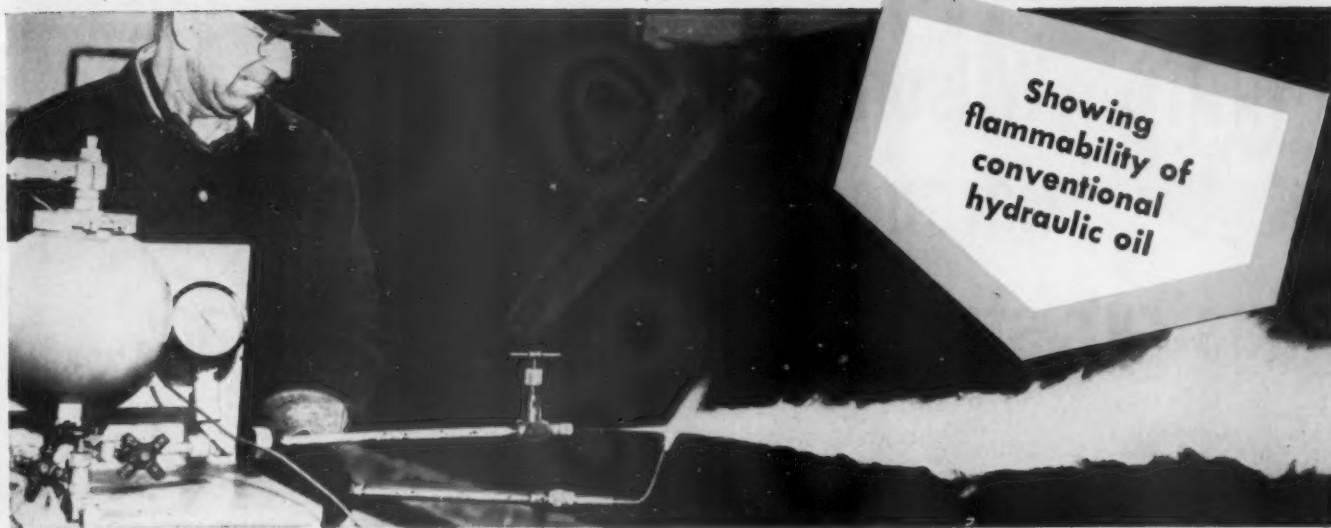
This brief description of one specific application makes abundantly clear the significance of these new electronic data processing methods to the purchasing agent. He need no longer be burdened with routine paperwork; a copy of the tabulation of vendor

schedules is all he need see and keep in his files. Similarly, the large number of records which now have to be posted in most purchasing departments will be substantially reduced, further streamlining operations.

Equally important is the fact that the PA will seldom have to drop his work to function as a rush-order clerk, putting all his effort into finding a particular item whose lack threatens to hold up production. The complete requirement details, computed with guaranteed accuracy, reduce such situations to an absolute minimum.

The practice in many purchasing departments of maintaining what is, in effect, a duplicate inventory control can be ended. The job of approving vendor invoices for payment can be simplified; the computer just checks the invoices against receipt of the materials.

The common-place, therefore, takes its proper secondary position. The purchasing agent can concentrate on those items which can't be handled on an open-end basis. He can maintain a better check on price and quality of open-end items, spending more time in finding the best possible sources of such materials.



Flame tests prove its fire-snuffing ability

**SHELL
IRUS
FLUID 902**

Entirely new formula: Shell Irus Fluid 902 is a special formulation . . . product of three years' development and field testing. It is suitable for nearly all industrial hydraulic systems, as a direct replacement for presently used oils. *Here is a fire-resistant hydraulic fluid that can be widely used.*

Non-corrosive: Shell Irus Fluid 902 contains no corrosive ingredients. It has no harmful effects on seals, fittings or bearings. It does not promote rust.

No major modification necessary . . . simply clean present fluid thoroughly out of system and replace directly with Shell Irus Fluid 902. You can use it with complete confidence. Write for test data and all information.

SHELL OIL COMPANY

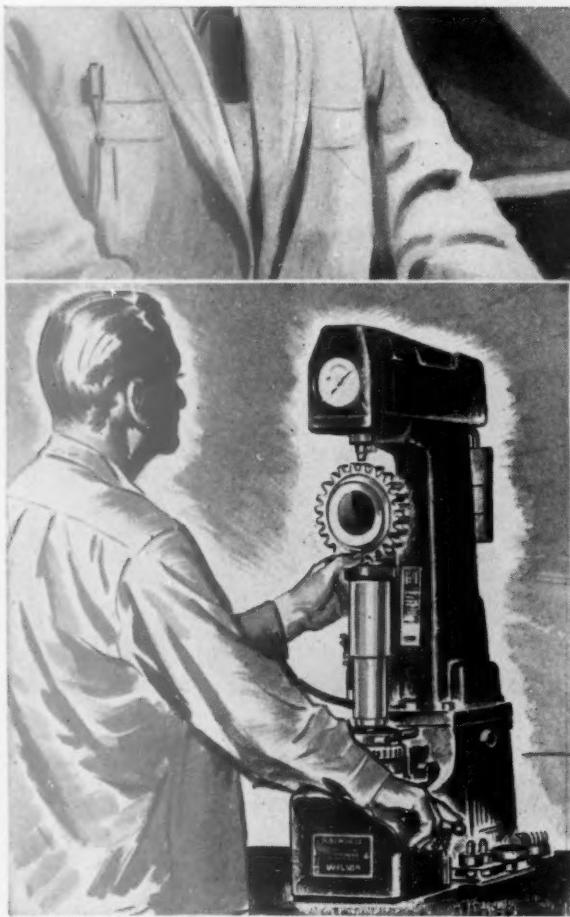
50 WEST 50TH STREET, NEW YORK 20, NEW YORK
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA



For More Information Circle No. 213 on Inquiry Card—Page 17



Wilson "ROCKWELL"® Hardness Testers are industry's standard of hardness accuracy...



® Trade Mark Registered

Unmatched for speed, versatility and economy....

Wide Range of Testing • If your business fabricates or produces metals and alloys, you are already familiar with this name. Wilson "ROCKWELL" Hardness Testers will test a range of materials from sheet metal to rolls of metals several feet in diameter and weighing tons.

Wilson "ROCKWELL" Hardness Testers are accepted as the standard for measuring and controlling hardness in such diverse fields as tools and dies, jet engine parts, heat-treated steels, automobile body sheet metals, brass, bronze and other non-ferrous metals.

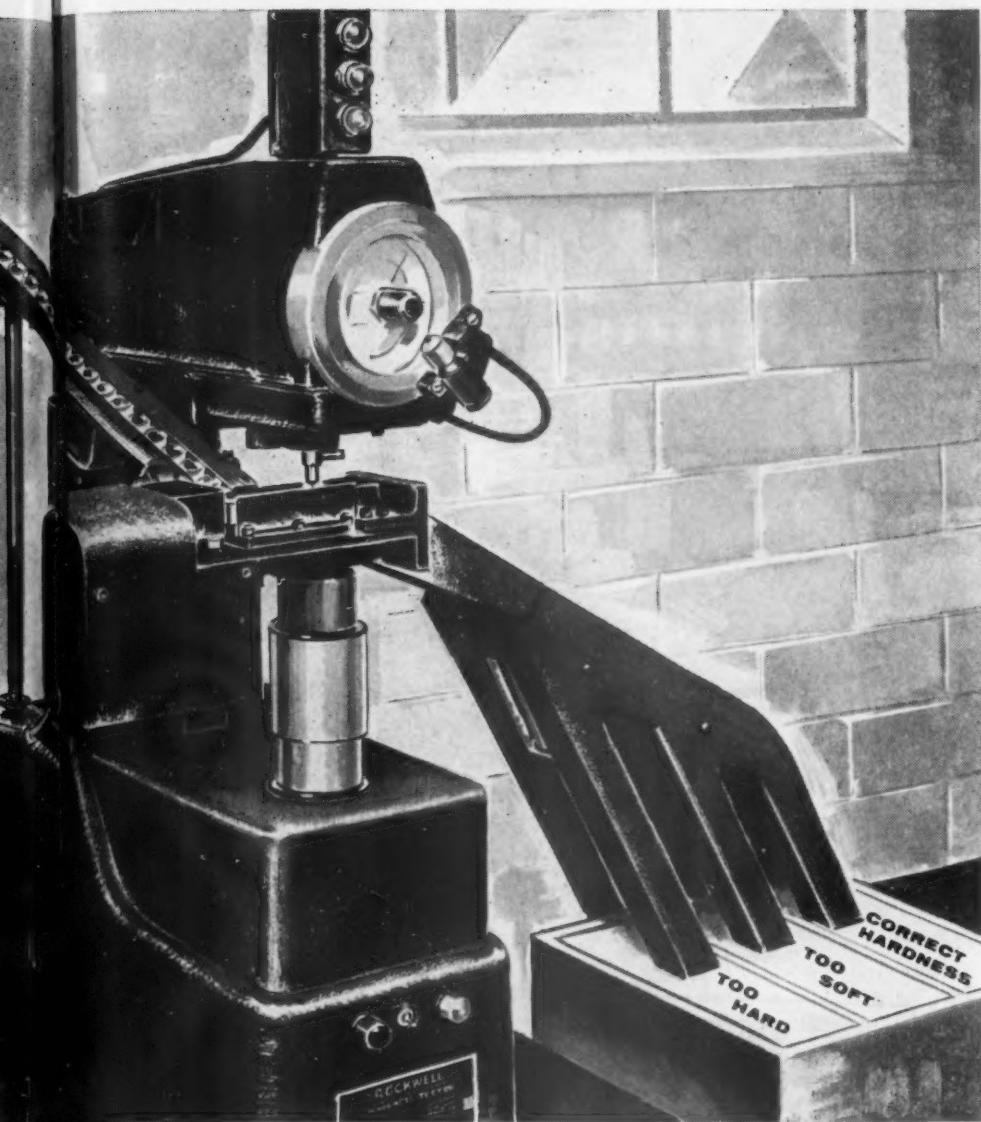
A Rockwell hardness of C62 means the same in the shipyards in Japan, the mines in South Africa, the industrial plants in the Ruhr, the steel mills in Sweden and the automobile plants in Detroit.

Wilson introduced the "ROCKWELL" Superficial Hardness Tester for testing materials as thin as .005" and

the "ROCKWELL" Motorized Hardness Tester which permitted faster testing. The latest Wilson development is the "ROCKWELL" Fully Automatic Hardness Tester shown above at the right. In this machine parts are hopper fed and sorted for Rockwell hardness as too hard, too soft, or correct hardness.

Wilson also pioneered micro hardness testing which makes it possible to test sheet metal or foils even less than .0005" in thickness.

Such development and leadership typify the progress of American Chain & Cable Company as, for example, the introduction of such better values as X-Weld Alloy Chain, VHS Wire Rope, Page Aluminized Wire, Helicoid (gearless) Pressure Gages, Campbell Abrasive Cut-Off Machines, Allison Abrasive Cutting Wheels, Tru-Lay Push-Pull Controls.



For Information on any ACCO product, address Market Development Department, American Chain & Cable Company, Inc., 929 Connecticut Avenue, Bridgeport, Connecticut



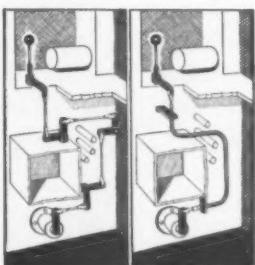
American Chain & Cable Company, Inc.

SALES OFFICES IN: Atlanta, Bridgeport, Conn., Boston, Chicago, Denver, Detroit, Exeter, Pa., Houston, Los Angeles, Monessen, Pa., New York, Philadelphia, Pittsburgh, Portland, Ore., Reading, Pa., San Francisco, Wichita, Kans., Wilkes-Barre, Pa., York, Pa.



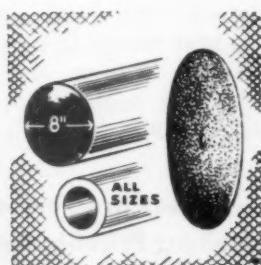
CABLE-LAID SLINGS

...of special wire rope with DUALOC endings, combine "manila-rope flexibility" with the strength of steel. Handle easily; cut costs.



TRU-LAY PUSH-PULLS

Push-Pulls, solid as a rod yet flexible, snake around obstructions, eliminate links and levers. Lubricated, sealed for constant service.



ALLISON ABRASIVE WHEELS

Handle a wide range of shapes and materials, including solids up to 8". "The best way to cut many materials...the only way to cut some."



ACCOLLOY X-WELD 125 CHAIN

...identifies itself by its "king-size" welding areas, which provide unequalled strength at the welds. Non-kinking; always hangs straight.

For More Information Circle No. 214 on Inquiry Card—Page 17

ACCO BETTER VALUES —KEY TO BETTER BUSINESS

You get better values when you buy ACCO products. Hence, your company can give better values when selling to your customers!

AMERICAN CHAIN DIVISION
Weed Tire Chains • Welded and Weldless Chain
Acco Registered Sling Chains

AMERICAN CABLE DIVISION
Tru-Lay Preformed Wire Rope
Acco Registered Wire Rope Slings • Tru-Loc Assemblies

AUTOMOTIVE and AIRCRAFT DIVISION
Aircraft Cable, Controls, Fittings
Tru-Stop Brakes for trucks and buses

ACCO CASTING DIVISION
Electric Steel and Malleable Iron Castings

ALLISON DIVISION
Rubber and Resinoid Bonded Abrasive Wheels

CAMPBELL MACHINE DIVISION
Wet Abrasive Cutting Machines • Nibbling Machines

FORD CHAIN BLOCK DIVISION
Chain Blocks • Electric Hoists, Trolleys

HAZARD WIRE ROPE DIVISION
Lay-Set Preformed Wire Rope
Acco Registered Wire Rope Slings • Tru-Loc Assemblies

HELICOID GAGE DIVISION
Pressure, Vacuum or Compound Gages

MANLEY DIVISION
Automotive Equipment for garages and service stations

PAGE STEEL and WIRE DIVISION
Welding Wire, Shaped Wire, Manufacturers' Wire,
Chain Link Fence

PENNSYLVANIA LAWN MOWER DIV.
Power and Hand Lawn Mowers

R-P & C VALVE DIVISION
Bronze, Iron & Cast Steel Valves • Steel Fittings

WILSON MECHANICAL INSTRUMENT DIVISION
"Rockwell" Hardness Testers

WRIGHT HOIST DIVISION
Wright Chain Hoists, Electric Hoists, Cranes

THE BRISTOL COMPANY
Automatic Control, Recording and Telemetering
Instruments, Aircraft Controls, Socket Screws

THE MARYLAND BOLT and NUT CO.
Bolts and Nuts • Lag Screws and Forgings

IN CANADA

DOMINION CHAIN COMPANY, LIMITED
THE BRISTOL COMPANY OF CANADA LIMITED

IN ENGLAND: BRITISH WIRE PRODUCTS, LIMITED
THE PARSONS CHAIN COMPANY, LIMITED

Better
Values

ideas

you can use

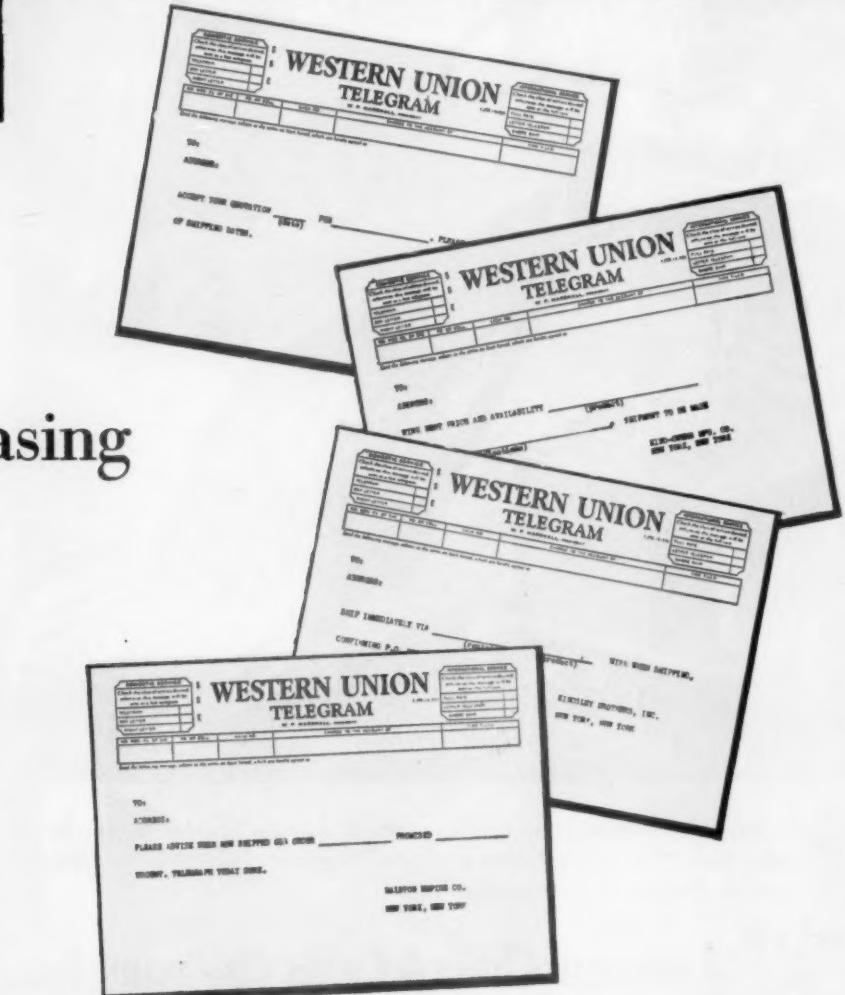
Preprinted Telegrams Speed Purchasing

A NEW, time-saving, cost-cutting idea for purchasing agents is the overprinted telegram. Telegrams have always been a big help to purchasing agents in getting quicker action on price quotations, accepting offers, placing orders and tracing shipments.

The new overprinted telegram now does the job faster and easier.

Western Union learned about the need for overprinted telegrams by purchasing agents when it undertook a recent market survey to find new and better ways to serve its customers. Purchasing agents interviewed said they were interested in how telegrams could add efficiency, economy and convenience to their operations. They wanted ideas on how to get their work done faster, more effectively, with less effort and less cost.

As an answer to this need, Western Union devised the overprinted telegram. It is simply a telegram blank on which a basic message is printed in advance with blank spaces left for inserting variable text matter. This greatly simplifies and speeds the



These are just a few of the suggested overprinted telegram messages applicable to purchasing transactions.

sending of telegrams and use of a prepared, condensed message reduces text words to a minimum.

Western Union supplies the blanks and suggested texts—the customer does the mimeographing.

Uses are Varied

Obtaining Prices by Telegram—Often when a final decision is made to buy, there has been a time lag since the last offer. That could spell trouble—especially in today's shifting markets when prices are flexible. A brief, to the

point telegram will get you quick price information.

Accepting Offers by Telegram—When the purchasing agent has a sound offer and wants to accept it quickly and definitely, the telegram with its valuable written record will nail it in minutes. A conversation is one thing, but having it spelled out leaves no room for doubt.

Tracing Shipments by Telegram—This use of overprinted blanks rates high in popularity with purchasing agents because it

(Please turn to page 136)

For More Information Circle 215
on Inquiry Card—Page 17→

PURCHASING

*Bob Rossi, Chief Engineer, tells
Roy Johnson, Plant Manager*

"We switched to **Formbrite**



-and saved 12 cents apiece!"



.032" gage 70-30 Formbrite is used for this 4 1/2" diameter rearview mirror head shown full size. Strip is 5 1/2" wide supplied in heavy coils for long press runs. Copper, nickel and chromium plating on a solid brass base provides a bright, rustless, long-lasting outdoor finish.



Peerless Rearview Mirrors.
"Flight-Wing," below, and
the newer "Director" model,
left. Housings and mounts
are chromium-plated zinc-
base die castings.

This easy-to-polish, superfine-grain drawing brass has been slashing finishing costs in plant after plant, on all kinds of jobs. Now Peerless Accessories Co., of Mount Holly, N. J., reports:

"To our line of lighting and safety automotive accessories, we've recently added two rearview mirror assemblies. We had been using regular drawing brass for the dished head until your representative persuaded us to try Formbrite. Here are the results, based on a very careful cost study:

**Finishing procedure using
regular drawing brass**

- 1) Grease grinding or "cutting"
- 2) Buffing
- 3) Copper strike
- 4) Nickel plate (.00045")
- 5) Buffing nickel
- 6) Chromium plate

Cost 27¢ each

**Present procedure
using Formbrite®**

- | |
|-------------------------------|
| Not necessary with Formbrite |
| Light buff |
| Copper strike |
| Bright nickel plate (.0003")* |
| Not necessary |
| Chromium plate |
- Cost 15¢ each**

"That's a saving of 12 cents apiece. Multiply it by 3,000 to 4,000 a day and it becomes important money!"

*Formbrite's superfine grain made possible a lighter but equally serviceable plate of bright nickel

Surprisingly, Formbrite doesn't cost a penny more. Find out for yourself how its superfine grain, excellent drawing properties, strength, and scratch resistance can help you make a better product at lower cost. Write for Publication B-39. Better yet, ask us about a sample lot. The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

6670

Formbrite FINE-GRAIN DRAWING BRASS

an **ANACONDA®** product
made by The American Brass Company

AMERICAN AIRFREIGHT OFFERS THE BENEFITS THAT PURCHASING AGENTS WANT MOST

When purchasing agents use airfreight to get deliveries in hours rather than days, they specify American Airlines Airfreight. American is their best assurance of fast, reliable service because of these important reasons:

COVERAGE

Only American offers the extra speed of direct one-carrier service to all ten leading retail markets . . . twenty five of the top thirty . . . all twenty three leading industrial areas in the United States.

CAPACITY

American has space for your shipments when and where it's needed most. A combined daily lift potential of over a half-million pounds gives American the greatest capacity of any airline.

FREQUENCY

Shipments get faster forwarding . . . spend less time in terminals with American's greater frequency of schedules. Over 1000 departures daily offer more service to more cities than any other carrier.

DEPENDABILITY

First with scheduled airfreight, American today has the largest, most experienced personnel force . . . most modern handling facilities. Is better able to solve shipping problems . . . provide dependable on-time deliveries.

AMERICAN AIRLINES AIRFREIGHT

—carries more cargo than any other airline in the world



**Airfreight costs less
than you think**

A typical 100 lb. shipment from New York
to Chicago costs only \$7.50 . . . from
Chicago to San Francisco
only \$18.80.



For More Information Circle No. 216 on Inquiry Card—Page 17



STRETCH ROLLS THAT STRETCH DOLLARS... for manufacturers of paper-making machinery. They're centrifugally cast by Shenango to provide complete uniformity, pressure-dense grain, freedom from blow holes, sand inclusions and other hidden defects. They'll wear longer, take abnormal stresses, loads and speeds without the risk of costly failure. If you need virtually any symmetrical part, ferrous or non-ferrous, large or small, rough or finished, write to: Centrifugally Cast Products Division, The Shenango Furnace Company, Dover, Ohio.

SHENANGO CENTRIFUGAL CASTINGS
 COPPER, TIN, LEAD, ZINC BRONZES • ALUMINUM AND MANGANESE BRONZES
 MONEL METAL • NI-RESIST • MEEHANITE METAL • ALLOY IRONS

For More Information Circle No. 217 on Inquiry Card—Page 17

ideas

(Continued from page 132)

deals with a common and ever-recurring problem—lagging shipments.

The efficient buyer gets best delivery results by keeping on top of orders "in the works." Many manufacturers have efficient, closely-supervised production departments that take pride in delivering goods on schedule and ahead of time if possible. But, frequently, the purchasing agent comes up against heavy production schedules, limited facilities and manpower problems. It is human nature to take care of the guy who prods. One of the most piercing prods that starts wheels rolling is a telegram.

Service to Suit

It's a good idea when considering telegrams to be familiar with the various classes of service, and wordage allowances. Proper use of the right service can insure both economy and efficiency—two words which stand high in the lexicon of every purchasing official.

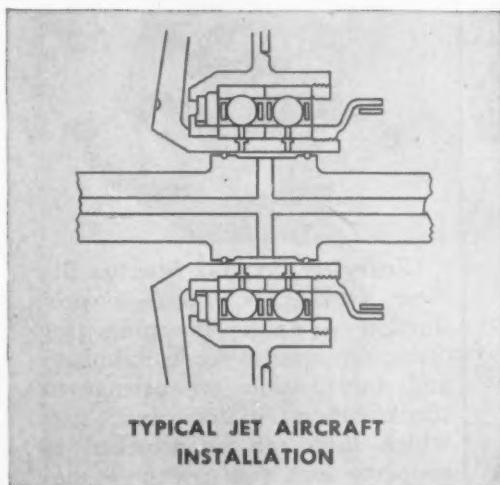
The standard telegraph services are as follows: **Telegram**—this is Western Union's fastest service—and now you may use 15 words instead of 10 at the minimum rate. This gives more words than formerly and makes it easier to express yourself without extra cost. Of course, you can use as many words in a telegram as you like. Rates vary according to distance.

Day Letter—This is a service for longer messages at low rates allowing 50 words for the minimum charge.

Night Letter—This is an overnight service for which you are now allowed 50 words instead of 25 at the minimum charge. Night-letters are just as effective as regular telegrams from the standpoint of getting action and in most cases are delivered at 9 A.M., (Please turn to page 138)



New Departure split inner ring bearing
mounting for jet engine main shaft



SEE "WIDE WIDE WORLD" SUNDAYS—NBC-TV

aircraft turbine bearings . . .

DESIGNED for HIGH SPEEDS, LOADS and TEMPERATURES

Today's leading production jet engines turn on New Departure split inner ring bearings . . . an out-ahead development of New Departure's continuing Aircraft Research Program.

These turbine bearings handle heavy thrust loads from either direction and major radial loads with unexcelled dependability. Two-piece inner ring construction facilitates cleaning, inspection and assembly. It also permits use of the maximum number of balls of largest possible diameter with high thrust shoulders and one-piece separator construction.

While these bearings meet today's demand, tomorrow's needs command the facilities of the New Departure Aircraft Research Program. Already bearing development looks ahead to operational speeds in the order of 100,000 rpm and temperatures close to 1000° F. Write for New Departure's Aircraft Turbine Ball Bearing Folder TB-56. New Departure, Division of General Motors, Bristol, Connecticut.

MEDIUM and LARGE TURBINE BEARINGS

Basic Bearing No.	NOMINAL DIMENSIONS		
	Bore	O.D.	Width
LL34	6.6929	9.0551	1.102
LL36	7.0866	10.2362	1.614*
LL44	8.6614	12.5984	1.929*
L22	4.3307	7.0866	1.280*
L24	4.7244	7.4803	1.280*
L26	5.1181	7.8740	1.280*
L28	5.5118	8.6614	1.574*
L30	5.9055	8.5060	1.235*
L32	6.2992	9.4488	1.338
L34	6.6929	10.6299	1.815*
207	1.3780	2.8346	.669
209	1.7717	3.3465	.938*
212	2.3622	4.3307	.866
213	2.5591	4.7244	.905
214	2.7559	5.1181	1.023
215	2.9528	5.1181	1.181*
216	3.1496	5.5118	1.023
219	3.7402	6.6929	1.259
220	3.9353	7.0886	1.385*
222	4.3307	7.8740	1.771*
224	4.7244	8.4646	1.850*
228	5.5118	9.4488	2.007*
232	6.2992	10.1992	1.660
307	1.3780	3.1496	.826
315	2.9528	6.2992	1.456

*Puller groove, inner ring or both rings

NEW DEPARTURE
BALL BEARINGS



NOTHING ROLLS LIKE A BALL

BALL BEARINGS MAKE GOOD PRODUCTS BETTER

For More Information Circle No. 218 on Inquiry Card—Page 17

"Buffalo"

FAN-O-GRAM

ON LOW COST VENTILATION

FIRMS BY THE THOUSANDS BUYING VENTILATION THEY ONCE THOUGHT TOO COSTLY. THE ANSWER IS THE NEW, COMPLETE LINE OF BUFFALO PACKAGE PROPELLER FANS, NOW DOING BIG JOBS AS WELL AS SMALL. URGENTLY SUGGEST YOU REQUEST BULLETIN FM-315 AND SEE HOW WELL THESE FANS ARE PERFORMING ON A VARIETY OF JOBS THAT WILL SURPRISE YOU.

BUFFALO FORGE COMPANY

BELT-AIR FANS HELP RAISE 20,000 CHICKS!

Farms as well as industry and commerce are getting quiet, efficient service from "Buffalo" Belt-Air Fans. A battery of 24" units keep the air fresh in this big poultry house. Belt-Air sizes range from 24" to 120" for 5,000 to 250,000 cfm air delivery. Here's a size range to handle most ventilating and exhaust jobs up to $\frac{1}{2}$ " static!



THESE BELT-AIRS VENTILATE A LARGE COLISEUM!

Here's one bank of 72" units exhausting 770,000 cfm from a Coliseum in the south. Another big installation is handling 1,439,000 cfm! Efficiencies are running very high, even where static pressures are involved.



IT'S JUST THE BEGINNING!

We're constantly developing special models to meet new demands — power roof ventilators — corrosion-resistant, non-sparking and/or high temperature units. Are you taking full advantage of the possibilities? Why not write for Bulletin FM-315 today and look over this increasingly popular line?

BUFFALO FORGE COMPANY

143 MORTIMER ST. BUFFALO, N. Y.

PUBLISHERS OF "FAN ENGINEERING" HANDBOOK

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

Sales Representatives in all Principal Cities

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BELTED VENT SETS

PROPELLER FANS

"E" BLOWERS-EXHAUSTERS

For More Information Circle No. 219 on Inquiry Card—Page 17

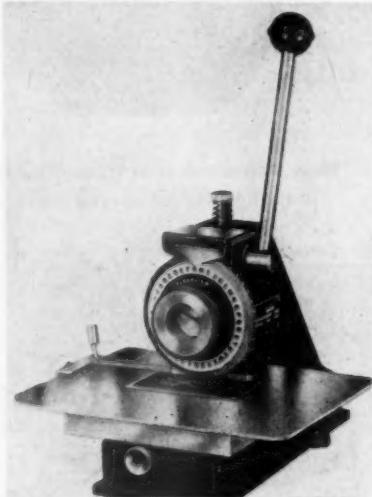
ideas

(Continued from page 136)

when most business operations get under way. However, business firms in the east and mid-west should always keep time differences in mind. When it's 5 P.M. in New York, for example, business firms on the west coast are just getting back from lunch at 2 P.M. with three business hours to go.

Telegrams have been an effective business tool for more than 100 years. Millions of them are sent yearly as part of business communication. Knowing when and how to use them can add much to your effectiveness as a purchasing agent.

Machine Stamps Identification Plates, Tags



Clearview Co., 172 Stanton St., New York 2, N.Y., has in production a nameplate press for stamping special code numbers and information on permanent identification plates and tags which then can be attached to property and equipment — machinery, typewriters, furniture, etc. The machine can also be used for scores of other identification purposes in every industry for marking on keys, tool room tags, nameplate badges for personnel, etc.

"My new washer?"



Whirlpool-Seeger Corporation
(like other manufacturers)
has learned the advantages of
shipping major appliances in
corrugated boxes. Let us tackle
your packaging problems.



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13 FACTORIES • 42 SALES OFFICES

For More Information Circle No. 220 on Inquiry Card—Page 17

office equipment

and supplies

Each year, the National Business Show serves as a showcase for many new products and developments in the office equipment industry. That such developments are important is without question, for only through the use of the most modern tools can the business office improve its efficiency.

Normally, as an editorial service, PURCHASING presents many product developments every month. This month, in conjunction with the National Business Show, PURCHASING is presenting a more complete, broader coverage of product developments in the field. Many of the items are brand new, some are revisions and redesigns of accepted equipment. All of them, though, from both exhibitor and non-exhibitor alike, are a

contribution to the over-all advancement of office operations.

The items, themselves, cover the office equipment industry in a broad range. They range from a new concept of changing typewriter ribbons to the use of data processing equipment in specific applications. There are new uses and models for dictating equipment and systems; special-purpose, high-speed calculators; office duplicating equipment and supplies; etc.

Remember, too, that additional information on any of these new developments is readily available by circling the appropriate number or numbers on the Reader Service Card in this issue. Drop the post-paid card in the mail, and more information will be forwarded to you.



Times Facsimile Corp., New York, is marketing an electronic facsimile copying machine which produces an offset paper master or a mimeograph stencil in six minutes. It electronically cuts a coated offset master or duplicating stencil without additional processing. It also produces dry and

permanent single copies in three minutes or less. It operates and shuts off automatically and reproduces from colored copy as well as black. Its vinyl-plastic stencils are good for over 10,000 copies, easily corrected and easily stored for re-use. The vinyl-coated offset plate is a medium run plate, good for several thousand reproductions. It can prepare stencils from typewritten copy, charts, for as, newspaper clippings, spirit process copies, etc.

Circle No. 37 on Inquiry Card—Page 17

A new divider wall partition for creating semi-private office units from open floor space has been announced by E. F. Hauserman Co., Cleveland. It is offered in two types — unglazed, at a height of 43" from the floor, including legs; and glazed, at a total height of 66" from the floor. There



is a 4" space between the bottom of all panels and the floor. Standard panel widths are 36", 48", and 60". The 24" high glazing is offered in many clear and diffused glass patterns. A total of 24 compatible color combinations are possible, using the three standard colors offered — pale green, light grey, and tan. Gates are also offered in coral. All metal parts are finished in low-gloss, hard-finish, baked enamel.

Circle No. 38 on Inquiry Card—Page 17



Two new high-speed calculators, featuring completely redesigned exteriors and significant mechanical improvements, are being introduced by **Facit, Inc., New York**. Designated as the CA1-13 and CS1-13, they feature the sculptured shape and two-tone green finishes that accent the new look of Facit models. For quieter operation, the internal assembly has been suspended in rubber and the hood of the machine has been insulated. Keyboards on both models have been slanted toward the operator. On the fully automatic CA1-13, the reverse knob, which used to be on the left side on previous models, has been moved to the keyboard as a separate lever. The semi-automatic model, CS1-13, now has electrical clearance of all registers and rubber wheels in the housing base, formerly available only on automatic models. Like previous Facit calculators, the new machines are built of fine Swedish steel to close tolerances. The CS1-13 weighs 26-1/4 lbs., and the CA1-13 weighs 28-1/2 lbs.

Circle No. 39 on Inquiry Card—Page 17

in neutral. In addition, it has an input volume control so that the machine can be used in any location, regardless of interfering noise conditions. A new indexing system which uses a roll of index slips that pull through and tear off is also a feature of the new model.

Circle No. 40 on Inquiry Card—Page 17

A new, high speed, electronic data processing machine which automatically sets type and embosses metal plates for identification, etc., while simultaneously performing four auxiliary operations to prepare plates has been announced by **Dashew Business Machines, Inc., Culver City, Calif.**



Known as the Databosser V100-EW, adaptable to integrated data processing, it is activated and cycled in its operations by punched cards, punched tapes or magnetic tapes. In addition to its basic typesetting and embossing functions, it can automatically and simultaneously attach tying wires to plates, emboss sequence numbers, coat embossed characters for easier reading, and notch plates for coding or sorting. When activated by punched cards or tapes, the Databosser will produce 1000 different plates per hour. Each plate can contain 3 lines of variable data, 2 of repetitive data, with 20 characters per line. Semi-automatic, manually activated models of the Databosser are also available.

Circle No. 41 on Inquiry Card—Page 17



New models of dictating machines have been announced by **American Dictating Machine Co., Inc., New York**. The Rex Recorder TN 3 uses an Off button which turns the machine on and off and automatically leaves the machine

An exclusive feature of a new desk produced by **Northwest Metal Products Co., Green Bay, Wis.**, is a "V" expanding drawer. Adjustable front tension and tilt-back follower combine with the expanding front to provide a "V" work space. There is 4" more drawer filing space, a full capacity of 27".

Circle No. 42 on Inquiry Card—Page 17



A new collator bin assembly, especially designed for sheet sizes up to 17" x 22", is now available from **Thomas Collators Inc., New York**, for both their electric and manually operated collators. The re-designed assembly is offered in a series of 10 and 16-sheet floor models as well as 20 and 32-sheet tandem models. The new component increases paper capacity per bin 70% over former units.

Circle No. 43 on Inquiry Card—Page 17

Two new office paper cutters have been added to the line of **Michael Lith, Inc., New York**. A smaller cutter handles paper 8½" while the other model is for 20½". The smaller unit will serve duplicating departments using small stencil or liquid duplicators. The larger, improved model can cut and trim for duplicating departments using larger machines handling 14" x 20" stock. All models are made of steel, have safety locks and latches for the cutter, and are equipped with a permanent rule and movable guides.

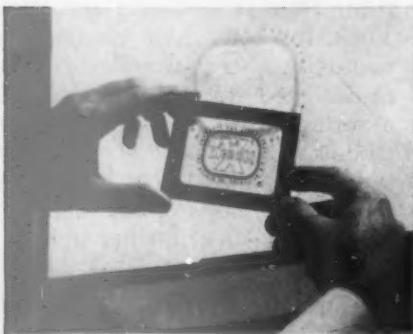
Circle No. 44 on Inquiry Card—Page 17



Boyle Leather Goods Co., Inc., New York, is marketing a new line of brief cases, portfolios, attache cases, etc., made of United States Rubber Company's tough, lightweight, thermoplastic Royalite. The new line is called Impac-tolite. All parts of the line come in both 16" and 18" lengths, with widths varying from 4½" to 8".

Circle No. 45 on Inquiry Card—Page 17
(Please turn to page 142)

office equipment



Transparencies for lantern slides and overhead projectors can now be made by xerography, according to an announcement from **The Haloid Co., Rochester, N. Y.** The steps required closely parallel those used in standard xerographic copying work. There are, however, two differences. The copy is made onto a sheet of acetate or film, instead of onto paper, and the fusing of the powder image is done by vapor, rather than heat. Xerography will do the job in 3 minutes, compared to about an hour for conventional methods, with a 50% cost reduction in material.

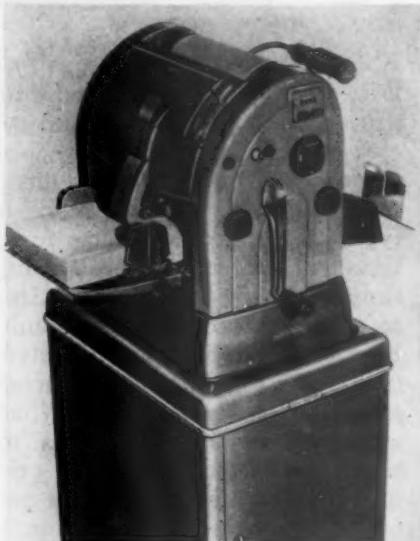
Circle No. 46 on Inquiry Card—Page 17

A new hand cleaner that removes practically every office stain has been announced by **Columbia Ribbon & Carbon Mfg. Co., Inc., Glen Cove, N. Y.** Called "Clean Hands", it removes stains such as carbon smudges, hectograph stains, water soluble inks, etc. It is packaged in an 8 oz. polyethylene squeeze bottle with a sure-lock top to prevent spilling, when stored on its side. A controlled-flow feature assures easy application. The hand cleaner is light and creamy.

Circle No. 47 on Inquiry Card—Page 17

A new series of **twin-cylinder duplicators** is being introduced by **Rex-Rotary Distributing Corp., New York.** Known as the D-280, the new model has been greatly improved in design and undergone changes in color and technical improvements. It replaces the Rex-Rotary model D-270. On model D-280, the automatic, line-

automatically, re-ink itself with the exact amount needed for each copy, and stop when the correct number of copies have been run off. When the ink cartridge becomes empty, a bell rings and the operator can change cartridges while the machine is in operation. Circle No. 48 on Inquiry Card—Page 17



metered, continuous inking system has been made exchangeable for quick color changes. Rubber ink rollers have replaced the previous cloth ones, saving up to 35% on ink consumption while delivering higher quality copies. The inking system uses an ink distributing tube of a larger diameter, enabling use of quick-drying paste ink of heavier consistency. Sealed ink cartridges are inserted in the machine, a dial set for exact ink density, and the counter set for the desired number of copies. The machine will run,

Davidson Corp., Brooklyn, has announced the introduction of two new models of a **small folding machine**, which also do scoring, slitting and perforating. The machines, the Davidson Embee line, produce one or two parallel folds in a wide variety of paper stocks. The smaller model, #230, handles sheets up to $9\frac{3}{4}'' \times 18''$. The larger machine, model 360, takes a maximum sheet size of $13\frac{3}{4}'' \times 28''$. Rated at 12,000 sheets of $8\frac{1}{2}'' \times 11''$ per hour, both machines



also will fold stapled multiple sheets. They have variable speed control automatic feed. Scoring is available as standard equipment, attachments permit slitting and perforating.

Circle No. 49 on Inquiry Card—Page 17
For More Information Circle No. 221
on Inquiry Card—Page 17→

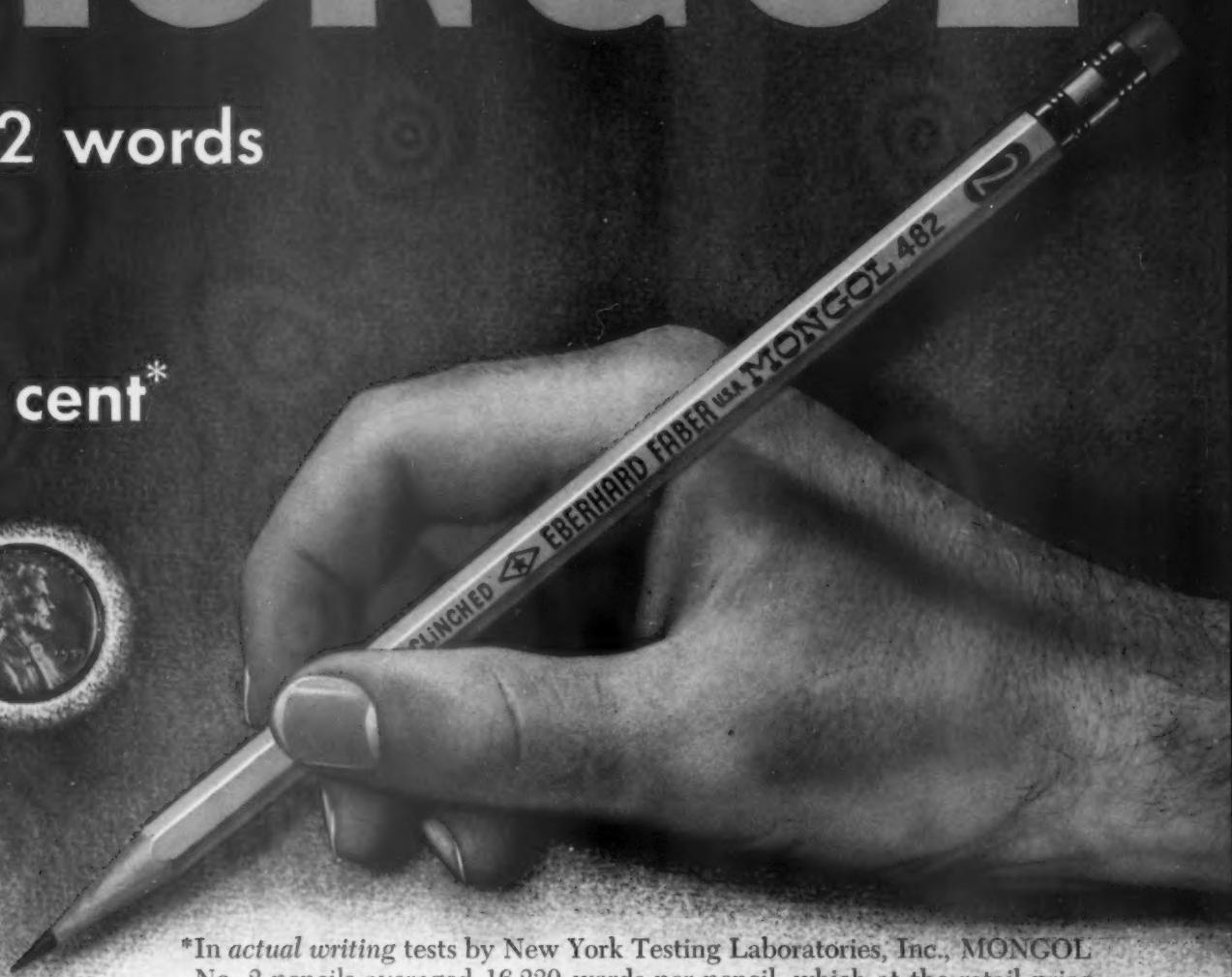
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MONGOL

2,162 words

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*In actual writing tests by New York Testing Laboratories, Inc., MONGOL No. 2 pencils averaged 16,230 words per pencil, which at the retail price of 7½¢ is 2,162 words per penny. Large lots mean even more savings.

Economy's only one reason why Mongol is America's preferred pencil! With Mongol, writing's easier in every way.

Other Pencils



Mongol writes blacker with less bearing down... writers say it actually stimulates flow of thoughts. Only Mongol has Complastic Lead... finer particles of graphite are tightly compressed for smoother writing, longer wear.

Mongol needs less sharpening... the points don't snap or crumble. Mongol's exclusive Woodclinching Process binds lead to wood for built-in strength.

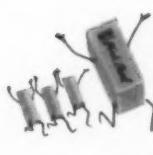
5 accurate degrees of lead hardness for every use and every taste. The pencil with the strongest points in its favor is Mongol!

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Mongol alone has erasers of "Pink Pearl" quality. Soft, smooth, pliable "Pink Pearl"... America's favorite eraser. Cleans as it erases—and it won't roughen the paper.



Mongol alone has the new bull's eye degree marking... for instant degree identification.

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The right chair eases stress and tension. The Harter 66 is that kind of chair. Correct posture design and precise handwheel adjustments fit the 66 to your body. Foam rubber cushions in seat, back and arms give cool comfort. The deep, molded seat is gently rounded to avoid harmful pressure to vulnerable nerves and arteries under your knees. Have a 66 fitted to you and start feeling "alive" at the end of each business day.

Write for informative booklet, *Posture Seating Makes Sense*. We'll send name of your nearest Harter dealer.

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HARTER POSTURE CHAIRS
STURGIS, MICHIGAN

For More Information Circle No. 222 on Inquiry Card—Page 17

office
equipment

Heavy-gauge, extruded aluminum frames and chalkboard troughs that provide attractive appearance and lifetime ruggedness are features of the chalkboards, bulletin boards and combination boards made by Barricks Mfg. Co., Chicago. The complete line includes chalkboards in two grades of writing surfaces—Dura-Slate and Supr-Slate, available in both black and green; magnetic chalkboards of lightweight sheet steel laminated to a $\frac{1}{4}$ " hardboard, complete with permanent magnets; bulletin boards in economical Dura-Cork and premium Supr-Cork; and combination cork bulletin and chalkboards in three combinations. Standard sizes range from 18" x 24" to 48" x 96".

Circle No. 50 on Inquiry Card—Page 17



Commercial Controls Corp., Rochester, N. Y., has announced the use of its Flexowriter automatic writing machine in combination with IBM cards for purchasing operations. The Flexowriter Programmatic machine, with edge-card punch and reader, edge-punches Flexowriter codes in IBM cards, automatically, during the preparation of purchase orders, sales orders, invoices, etc. When connected to a motorized tape punch, the Flexowriter produces a by-product paper tape to actuate other business machines for data processing.

Circle No. 51 in Inquiry Card—Page 17

For More Information Circle No. 223
on Inquiry Card—Page 17→

Take your pick-

get the latest
information on
purchasing systems
and procedures,
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equipment, supplies

This *FREE* literature belongs in
the office of every purchasing man.



METHODS AND PROCEDURES THAT CAN SAVE YOU TIME AND MONEY IN THE FUNCTIONS OF PURCHASING — TESTED BY ACTUAL USERS



X1202 Rev. 2—A methods manual of purchasing procedures that save time and money.



KD768—Purchasing facts at your finger tips with Visible-Shift Binders and Multiple Ring Books.



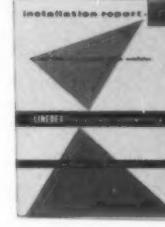
CH1041—Visible records-control equipment aid production, purchasing and personnel functions for Boeing Airplane Company — save up to \$300,000 each year.



S-1794—Heywood-Wakefield Co., Gardner, Mass., control purchasing records with Kardex® Visible Equipment and Follow-up Folder System.



CH954—Office time saving of 80% with improved follow-up control of purchase orders at Dravo Corporation, Pittsburgh, Pa.



KD790—Linedex® gives fast, effective expediting of purchase orders at I-T-E Circuit Breaker Co., Philadelphia, Pa.

R8612A Rev. 3—Electric typing pays big dividends. Typing production increases 20%...30%...even as high as 50% with the Remington Electric. And, there are 6 BIG dividends in all. Read about them in this 16-page, colorful brochure.



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R8751—For manual typing, the Remington Standard is the finest and fastest. TESTED TEMPO TOUCH speeds typing—reduces fatigue.



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| <input type="checkbox"/> C639.5 | <input type="checkbox"/> C639.6 | <input type="checkbox"/> C639.9 | <input type="checkbox"/> DS128 | <input type="checkbox"/> DS147 | <input type="checkbox"/> RSR291 Rev. 2 |
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C99 Rev. 2F—Typical balance sheet analysis accomplished simply and speedily with the Model 99. See sample computation in this literature.

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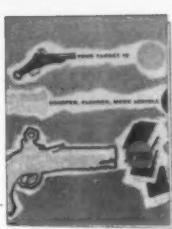
DS128—Procel Stencils with exclusive plastic coating are better 3 ways—assure more copies—assure better copies—assure more ease in typing.



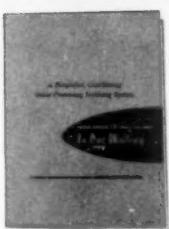
DS147—"The Magic of Plastiplates for Speed and Quality in Offset Duplicating,"—for office duplicating there is no better way than Plastiplates. You'll agree when you see this informative folder.



RSR291 Rev. 2—The RIGHT ribbon for the printing performed by Typewriters, Adding-Calculating, Tabulating, Teletype and Addressing Machines is ribbon designed for these individual printing demands. Find out WHY in this folder.



RSC321—There's a carbon paper to meet your specific requirements for the type of work performed. If you choose the right carbon paper, you'll get perfect results.



X1432—From order to final billing—in one writing. See this system in flow-chart form in this informative folder. Read why Remington Rand duplicating supplies fit this system best.

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T401—TRANSCOPI^Y DUPLEX gives you fast, accurate, economical copies of office records. Reproduces all types of records—written, printed or drawn, black or white or colored, opaque or translucent.



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F383—Microfilming with low-cost, precision Model 8 Row type Camera can solve your record keeping problems.

ELECTRONIC POWER FOR THE FULLY AUTOMATIC OFFICE

TM830—How to get more from the punched-card method with modern Remington Rand machines. More information...More Speed...More Economy...More Versatility.



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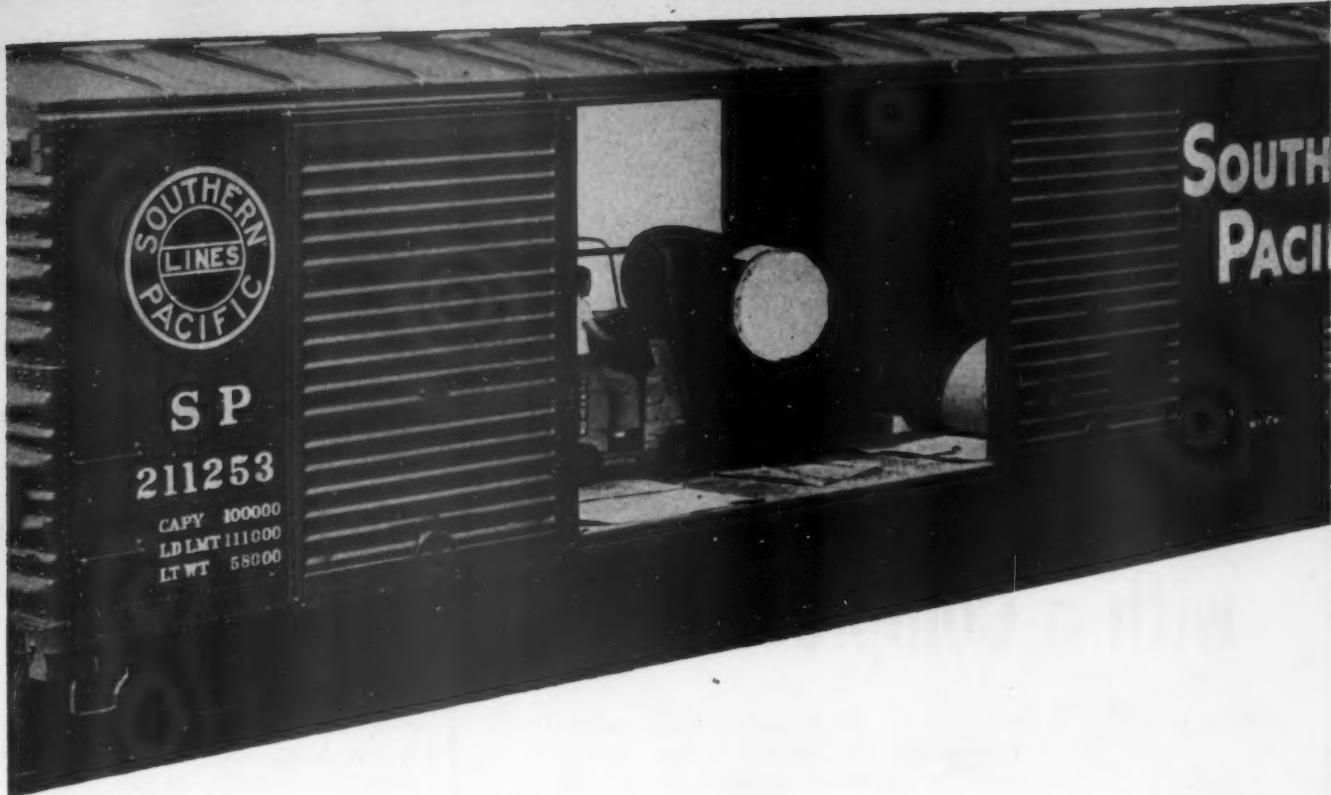
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EL282 Rev. 1B—The Univac® System of electronic data-processing. A 74-page, informative manual describing techniques—methods—applications. Every modern, fully automatic office should have information contained in this manual.



TM990A—A big new step toward the automatic office is the Remington Rand Univac® File-Computer System. Here is a new approach to procedures, condensing several usual computer applications into a single run.



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Here's whiteprint paper quality nobody can equal

This shipment, like every lot of base paper that rolls into our coating plant, was made for one purpose *only*—diazo coating by Ozalid!

Since Ozalid is far and away the world's largest coater of dry whiteprint paper, mills run paper specifically for us—to our rigid specifications.

Therefore, we get base paper that's brighter and stronger to start with . . . folds better . . . lasts longer.

And, "better paper to start with" is only the beginning of this story. Through the succeeding steps . . . coating and testing . . . Ozalid controls quality as no other manufacturer of paper for dry process whiteprinters can.

With Ozalid quality-controlled paper you cut way down on waste—get consistently better prints at lower cost.

For all the "whys" of whiteprint paper buying, call your local Ozalid representative. His number's in the phone book, or write, Ozalid, Dept. L-10, Johnson City, N. Y.

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For More Information Circle No. 224 on Inquiry Card—Page 17

The surest way to get the exact paper, inks, carbons, sizes you need for office reproduction processes is to

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MANY, many forms are needed in modern business. But for every situation there is only one right type of form to use. You can be sure of getting this one exact form you need by buying from a firm (1) that offers a complete line and (2) whose salesmen are skilled in form-design.

That's why it will pay you to contact Baltimore Business Forms. Our salesmen know forms—they've designed them for leading business houses throughout the country. Their experience, combined with our complete line, is your guarantee of the precise form you need for your specific problem. Write today: there's no obligation, of course.

*Forms for Office Duplication—Fluid, Offset and Photocopy Processes.
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The Baltimore Business Forms Company

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Saving time and reducing costs in business and industry

4148 FREDERICK AVENUE

BALTIMORE 29, MARYLAND

For More Information Circle No. 225 on Inquiry Card—Page 17

office
equipment

An electronic device that adds instant dictating service to any telephone has been developed by Thomas A. Edison, Inc., West Orange, N. J. The Dial Televoice System uses inter-office dial phones to provide a system in which the voice alone activates a dictating instrument. An executive dials a number and dictates to a central recorder without clipping initial words. A constantly revolving magnetic drum permits the recording of words, their subsequent reproduction on the recording disc and their erasure after recording. The drum holds the words until the disc reaches operating speed, preventing loss of the first words.

Circle No. 52 on Inquiry Card—Page 17



Fremaco International, Inc., Chicago, has announced a new Summira printing adding machine, in addition to the standard non-print model. The Summira weighs 8½ lbs. A two-color ribbon prints additions in black and subtractions and totals in red. The machine uses nylon gears. It also has visible total and individual entry dials for visual checking by the operator.

Circle No. 53 on Inquiry Card—Page 17



"The Morning Mail" / by Fritz Willis

"On the American business scene"

Gooooood Morning! And the practiced hands of the familiar, gray-uniformed postman give a final rifle through the envelopes . . . the morning mail.

Other practiced hands slit the envelopes and extract the contents. Arranged in neat stacks with the "important" mail on top the letters and envelopes are placed on the desk of "Dear Mr. Jones" and "Dear Mr. Smith".

Bright and gleaming white as a newly starched

dress shirt, Gilbert Quality Bond Papers can give all of your business correspondence that "important" look which prompts action. The "stand-up" and "stand-out" qualities of these, America's finest bond papers, are due to their carefully selected new cotton fibre content. They are also tub-sized, air-dried in a separate manufacturing operation for a rich cockle finish and superior erasability.

Ask your printing supplier about Gilbert Papers.

Gilbert Quality Papers

Gilbert Bond, Resource Bond, Radiance Bond, Lancaster Bond

A GOOD LETTER IS ALWAYS BETTER / WRITTEN ON A GILBERT BOND



Only Art Metal brings you

COORDINATED RESOURCES FOR OFFICE MODERNIZING

PLANNING • EQUIPMENT • SYSTEMS

We can help you eliminate waste motion, save time, and have offices that are completely modern in appearance and efficiency. With Art Metal's fully coordinated resources, each worker is placed in proper relation to efficient work-flow, comfortably seated at a functionally organized desk...with time-saving visible record systems and mechanized filing...all at less floor-space cost per work-station. Let us show you what this means for your business.



- **CORRECT-POSTURE SEATING throughout the office.** Nothing encourages sustained and accurate office work like the *fatigue-free comfort* of an Art Metal Aluminum Posture Chair. There's an Art Metal office chair for everybody from the president down, scientifically designed and built for correct body support, soft, cool, all-day comfort. Art Metal's "Tilt-Action" seat and "Live-Action" back permit real in-place relaxation. Ask for the Art Metal Chair Catalog.



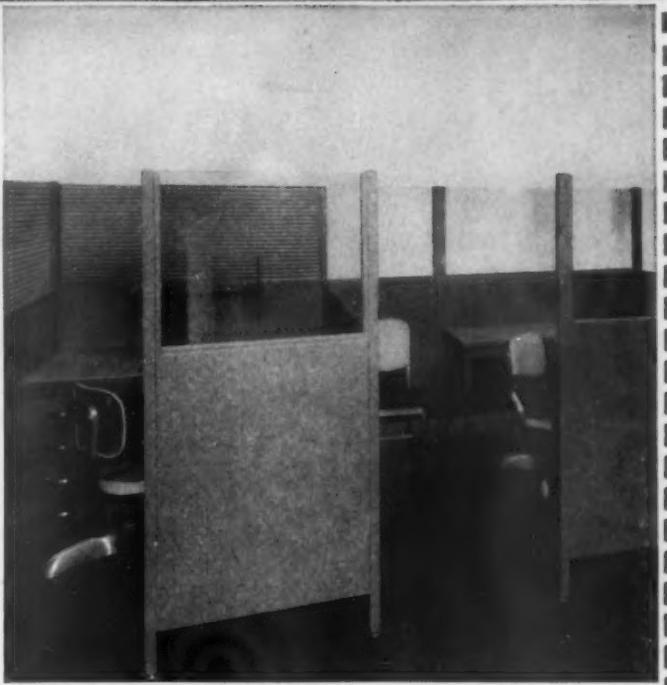
- **World's fastest FILING EQUIPMENT.** The revolutionary Art Metal Speed-File costs substantially *less* per filing inch than conventional files of comparable grade, yet provides 33% faster filing, adds 15% to usable capacity. Ends annoying, time-wasting delay in obtaining material from files. There is a size and style of Art Metal file for every need and every type of office record...letter, cap and card, invoice, order and ledger sheets, and engineering drawings. Ask for the Speed-File Catalog.



- **POSTINDEX VISIBLE control systems.** Visible record keeping at its most efficient. Speeds up posting, reveals at a glance the information needed for operating decisions. For every type of business and every department...including Personnel, Sales, Stock, Purchase, Production, Cost and Credit records. Four types of Postindex equipment make it possible to meet individual requirements in the most effective manner, at the lowest possible cost. Ask for Postindex Catalog.



JOB-FITTED DESKS for every work-station. Art Metal New Century desks are "Built for Action, Styled for Leadership." Their functional design and organization for individual job requirements step up office work output and reduce costs wherever they are installed. Art Metal desks meet every office need—they are produced in all sizes in a line that offers the widest selection of executive and general office desks ever developed. Ask for the New Century Desk Catalog.



"EL-UNIT" space-saving modular offices. This new Art Metal development applying the modular principle to office equipment often provides superior working facilities for 3 persons where 2 worked before. The complete line of desk units and work tops fits the requirements of any job, offers unlimited possibility in layout. In open office areas or with steel and glass partitions for privacy...easy to re-arrange or move. Ask for El-Unit Catalog.



Credenzas complete the EXECUTIVE OFFICE. Placed within easy reach of executive desks, Art Metal's new Credenza units save countless steps. Individual needs are met by combining letter files, open-shelf cases or cupboards (with sliding doors of steel or glass) in any desired grouping. Styled, built and finished to match Art Metal's quality desk lines with one-piece flush tops in widths up to 92", creating a custom-made look. Ask for literature on Special Executive Office Furniture.

EXPERIENCED HELP in Office Planning

Through your local Art Metal representatives, we offer you an Office Improvement Planning Service based on the widest experience in working with businesses ranging from the largest corporations down to the one-man office.

This service is comprehensive and is available for offices of any size from smallest to largest. It covers revision of present layouts or organization of new ones, efficient use of working time and working space...everything from desk drawer organization and visible record control to consulting on decorator treatment of executive and general offices.

→ Just look in the telephone book "Yellow Pages" under Art Metal, or write Art Metal Construction Company, Jamestown 17, N.Y., for "Office Standards and Planning."



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For More Information Circle No. 227 on Inquiry Card—Page 17

*diamond
bright . . .
sparkling white*

WESTON BOND

a rag content paper for letterheads

Give your letterhead a lift with brighter, whiter Weston Bond. Letters look cleaner, neater, more impressive against its brilliant whiteness and quality texture. Ask your printer to use it. Also available in colors, white opaque, litho finish and matching envelopes.

Write for Sample Book.
Address Dept. PN

BYRON WESTON COMPANY
DALTON, MASSACHUSETTS

WESTON PAPERS
PROTECT YOUR RECORDS

Makers of Papers For Business Records Since 1863

For More Information Circle No. 228 on Inquiry Card—Page 17



Who's Got That Jones Estimate?

Tearing the hair only makes for ulcers. Keep your papers filed the Acco way and stay happy. Your estimates, orders, correspondence, invoices—all your business records—are always where you want them, when you want them, when you use Accopress Binders or Accobind Folders in your files. Made of durable pressboard (choice of 5 colors) to last and last. Loose-leaf binding at a low price. Sizes to fit all your needs—and to bind from a single sheet to a six inch pile. Acco equip your files now. Ask your stationer.



ACCO PRODUCTS, Inc.
Ogdensburg, N.Y.

In Canada: Acco Canadian Co., Ltd., Toronto
For More Information Circle No.
229 on Inquiry Card—Page 17

152



DIGIT DROOP?

Not with TICONDEROGA

Fingers won't cramp or tire even after long sessions with a Dixon Ticonderoga pencil. No finger fatigue common with other writing instruments. Prove it to yourself. Try Ticonderoga—it's Leadfast.

TICONDEROGA

THE JOSEPH DIXON CRUCIBLE CO.
Pencil Sales Division, P-16, Jersey City 3, N.J.

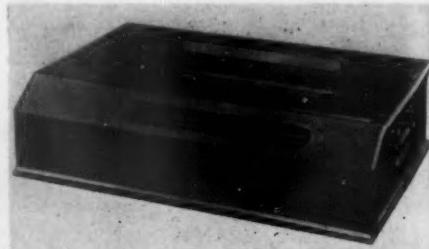
For More Information Circle No.
230 on Inquiry Card—Page 17

office
equipment



A new series of heavy duty office machine stands are being introduced by Tiffany Stand Co., St. Louis. The stands are Series 8000 and are vibration-free. The stands are compact, occupying a minimum of floor space. The noise reducing open, adjustable cup top accommodates practically all machines. A foot pedal operates the caster retracting device, which is completely enclosed. The stands are available in silvertone gray, walnut brown, dark office green, beigetone, and mist green.

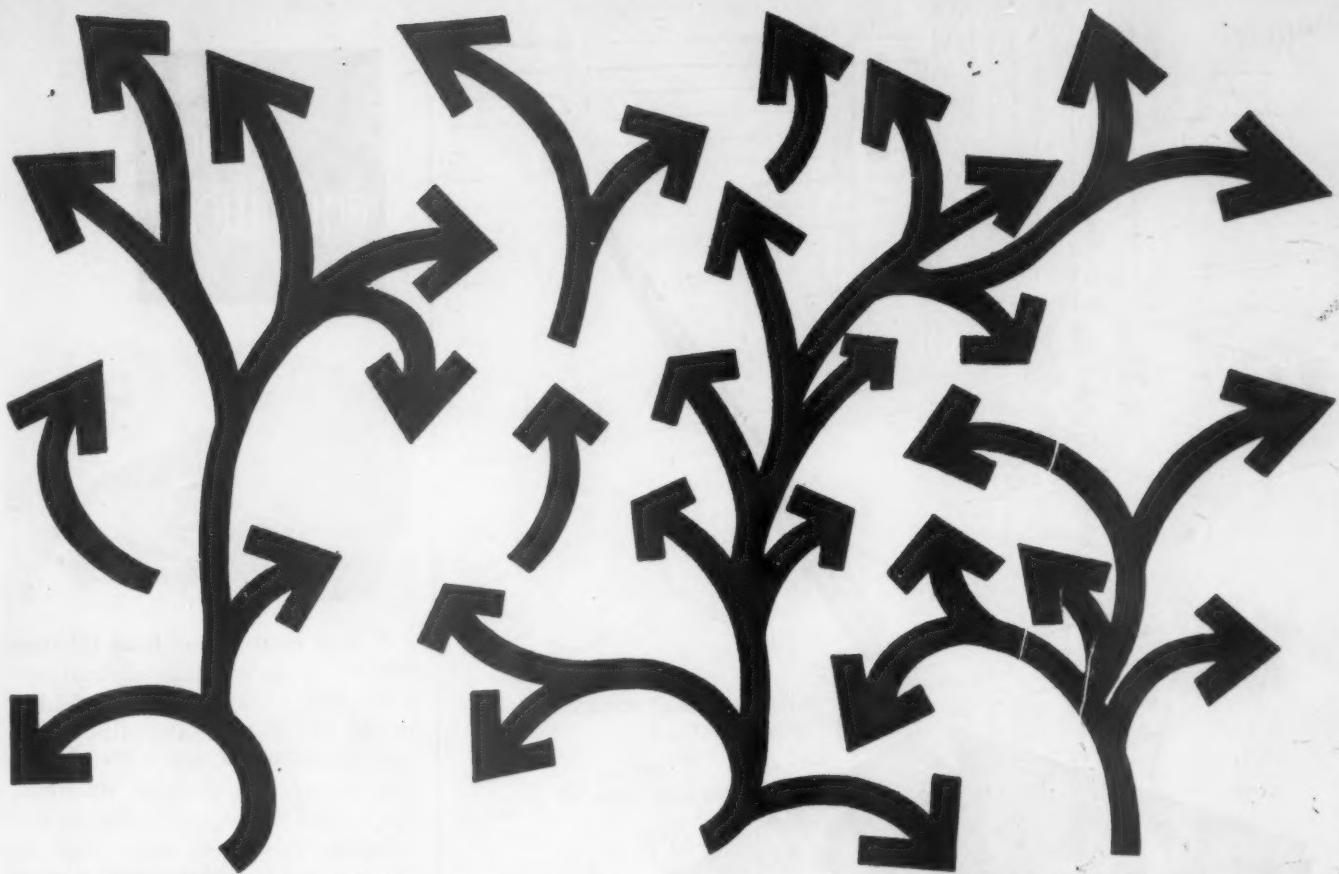
Circle No. 54 on Inquiry Card—Page 17



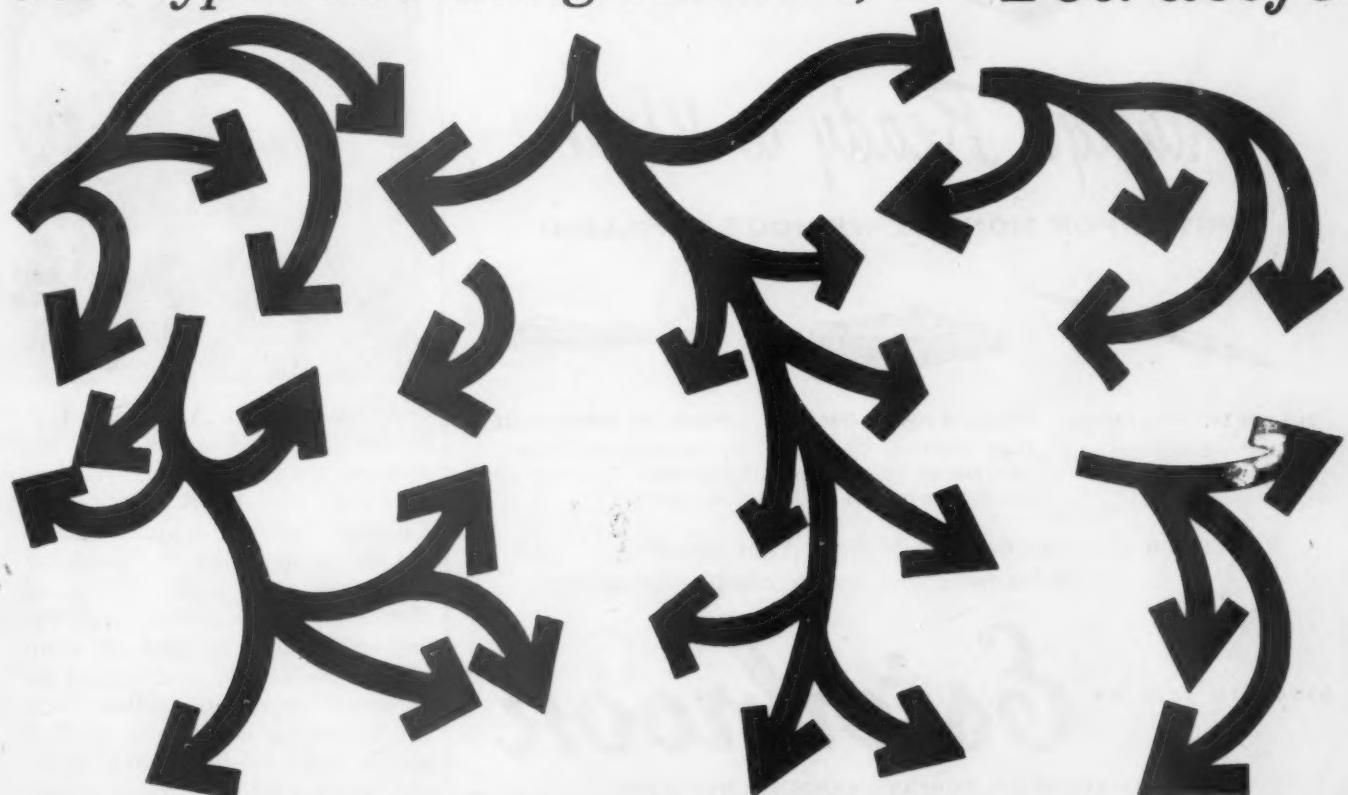
An automatic photocopy machine has been announced by General Photo Products Co., Inc., Chatham, N.J. Called the Genco Exact-Fax, the self-contained unit is portable. Constructed of metal, with a stainless steel covering, the unit weighs about 28 lbs. It makes about 90 copies per hour, 9½" in width by any length. It makes single or double-side copies, in all colors.

Circle No. 55 on Inquiry Card—Page 17

PURCHASING

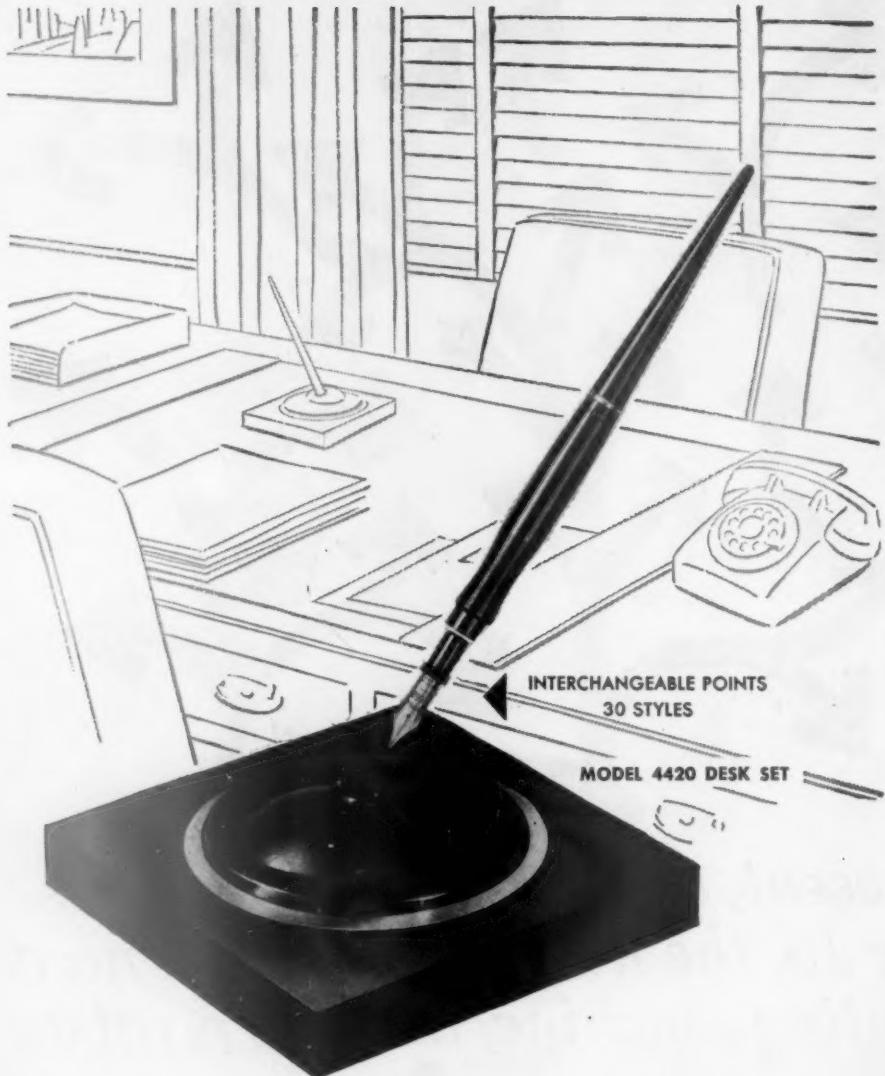


olivetti will present, at the National Business Show on October 15, the newest, most advanced desk-type calculating machine, the Tetractys



IF YOU ARE UNABLE TO ATTEND THE NATIONAL BUSINESS SHOW, WRITE FOR INFORMATION ON THE TETRACTYS TO OLIVETTI CORPORATION OF AMERICA, 580 FIFTH AVENUE, NEW YORK 36

For More Information Circle No. 231 on Inquiry Card—Page 17



Always Ready to Write

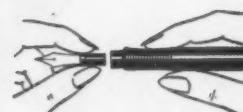
WRITES FOR MONTHS WITHOUT REFILLING



THE PEN THAT FILLS ITSELF
instantly—every time you
return pen to socket.



HOLDS 40 TIMES MORE INK
than ordinary fountain
pen. Needs no attention
for months on end.



CHOOSE THE RIGHT POINT
for the way you write—
by number. More than 30
point styles.

Try one on your own desk for 30 days. Your money
refunded if you are not completely satisfied.

DESK PEN SETS BY

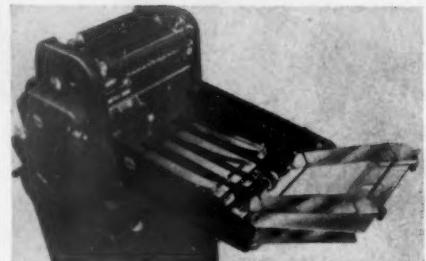
Esterbrook®

THE ESTERBROOK PEN COMPANY, CAMDEN 1, NEW JERSEY
The Esterbrook Pen Company of Canada, Ltd., 92 Fleet Street, East; Toronto, Ontario

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For More Information Circle No. 232 on Inquiry Card—Page 17

office
equipment

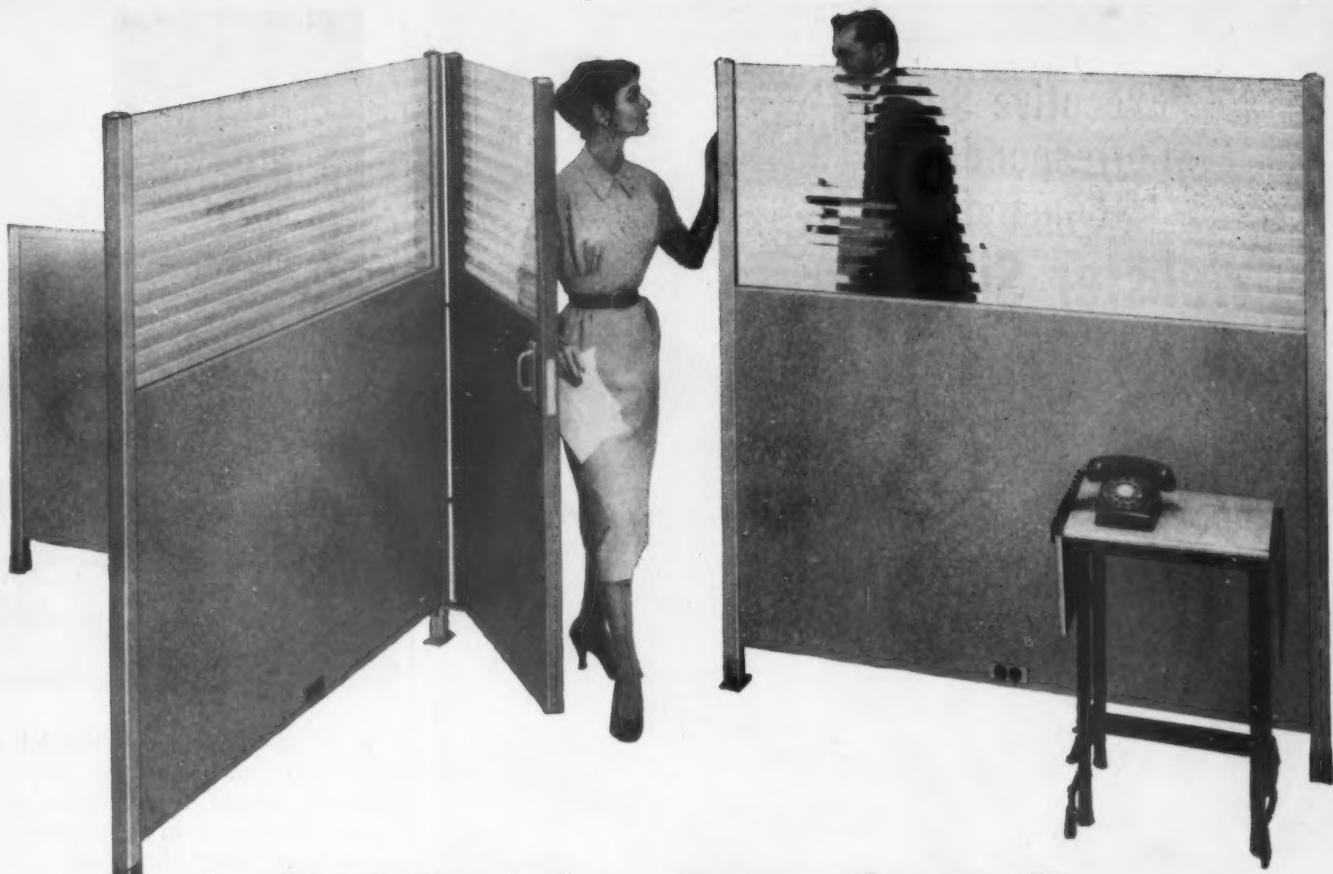


A new continuous load friction feeder for imprinting applications with the Davidson Dual-Lith Model 241 is now available from the **Davidson Corp., Brooklyn**. The feeder has its own diagonal feed board and a spring jogger for accurate register of each sheet. It can be used to imprint heavy materials such as cartons, as well as blotters, brochures, booklets, etc. Circle No. 56 on Inquiry Card—Page 17



A new model Azograph duplicator designed specifically for systems work, has been announced by **A. B. Dick Co., Chicago**. Called the Model 225, it has been designed for sit-down operation, is on a 26" high stand that houses the motor, and operated by foot control. A companion model, 226, is designed for tabletop operation. Either unit can be set for continuous feed or single cycle feeding, most desirable when feeding cards or sheets for accurate register.

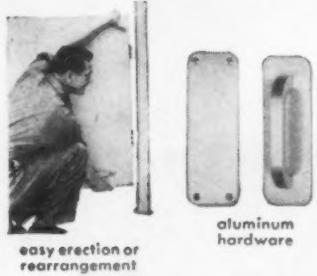
Circle No. 57 on Inquiry Card—Page 17



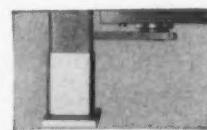
1 divided by 2 makes 3 with new HAUSERMAN Divider-Wall

This bit of topsy-turvy arithmetic makes sense when applied to the problems of allocating valuable office floor space: 1 cluttered general office area, divided by 2 HAUSERMAN Divider-Wall partitions makes 3 effective work units. Efficiency takes an immediate turn for the better when employees

are shielded from noise and other distractions and are allowed to work in comparative privacy. Designed and built by HAUSERMAN, new Divider-Wall has the fine features of rugged construction and attractive appearance you would expect from the leading manufacturer of movable interior walls.



concealed wiring channels



concealed checking hinge on gates



reusable plastic glazing strips



simple leveling device

Handsome HAUSERMAN Divider-Wall finish is durable baked-enamel requiring only periodic washing for maintenance. Green, gray and tan are standard colors, and coral may also be ordered for gates. Any other color may be ordered for extra cost, later delivery. Divider-Wall is designed so that

your own maintenance crews can erect it right from the carton. However, HAUSERMAN'S nationwide erection service stands ready to install it for you quickly and economically. Consult the Yellow Pages and call your HAUSERMAN office today for a first-hand look at a Divider-Wall installation.

HAUSERMAN

MOVABLE  INTERIORS

THE E. F. HAUSERMAN COMPANY
7576 Grant Avenue • Cleveland, Ohio
Hauserman of Canada, Ltd., Toronto, Ontario

FREE! For a complete explanation of all the Divider-Wall features, an authentic color selector, specifications and complete listing of HAUSERMAN field offices, send today for your free copy of this new full-color Divider-Wall folder.



Name _____	Title _____
Company _____	State _____
Street _____	
City _____	

"Executive Suite"
Correspondence
demands

Webster Silk Star Ribbons



For letters that matter — that speak for and sell the high caliber of your company only Webster's Silk Star will do and here's why:

Silk Star makes crystal clear, clean cut impressions. Made of tightly-woven, fine silk, it mirrors the face of the type as no other typewriter ribbon fabric can.

Silk Star is consistently strong. It will withstand the severe cutting action of type . . . of constant pounding day after day and still give sharp, legible and even typing results.

Silk Star is extra-long for extra service. It means fewer ribbon changes and longer service from each ribbon.

Try them now and see the difference.

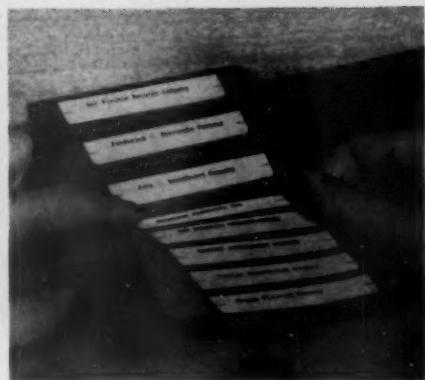
***WRITE FOR FREE SAMPLE** on your letterhead. Indicate make of typewriter and type face (pica or elite).

Available in all standard colors and combinations.

Make it clear...make it **Webster's**
AT LEADING STATIONERS EVERYWHERE

F. S. Webster Co., 7 Amherst St., Cambridge 42, Mass.
For More Information Circle No. 234 on Inquiry Card—Page 17

office
equipment



A self-adhesive file folder label has been announced by Avery Adhesive Label Corp., Monrovia, Calif. It comes in easy-to-type sheet form. They also come in 10 upper border colors for coding systems, and have marginal guides for rapid typing. They can also be used as shelf or bin marker.

Circle No. 58 on Inquiry Card—Page 17



The American Photocopy Equipment Co., Chicago, is now in production on a compact book copier called the Apeco Panel-Lite Copier. It is lightweight, styled in metal, and has a baked enamel finish. It measures 19½" x 13" x 4", and has a built-in automatic timer. The copying surface is a 3-ply, filtered glass, with a removable cover.

Circle No. 59 on Inquiry Card—Page 17

For More Information Circle No. 235
on Inquiry Card—Page 17→



Cast in the mould of the man



In the hand-book of men and companies who have made their mark
there is no substitute for the perfection of fineness.

It is for them that Crestline was built . . . office furniture
so fine in every detail of line, design and
efficiency as to stand alone, in a class by itself.

Our catalogue provides further details.

Prominent Users of Strathmore Letterhead Papers: No. 124 of a Series



SOUTHERN CALIFORNIA EDISON COMPANY
EDISON BUILDING • P.O. BOX 551
LOS ANGELES 55, CALIFORNIA

Mild climate permitted economical open-air construction for the giant 280,000 kilowatt Southern California Edison Etiwanda Steam Station.

A powerful reason for Quality!

Every letter signed in your office carries two messages ... its written words, and oftentimes more important, a significant impression of your corporate character. For example, a handsomely simple design on a quality Strathmore Paper underscores the dependable reputation of the Southern California Edison Company. Have your supplier show you samples of Strathmore Letterhead Papers. See for yourself the difference a quality letterhead makes in a powerful portrayal of your company.

Southern California Edison Company supplies low-cost electricity to nearly a million-and-a-half customers. Its twenty-four hydro-electric plants, some located in the High Sierra Mountains, and eight fuel-powered plants, have a generating capacity of well over two million kilowatts to supply power for residential, commercial and industrial use.

STRATHMORE LETTERHEAD PAPERS: STRATHMORE PARCHMENT, STRATHMORE SCRIPT, THISTLEMARK BOND, ALEXANDRA BRILLIANT, BAY PATH BOND, STRATHMORE WRITING, STRATHMORE BOND. ENVELOPES TO MATCH CONVERTED BY OLD COLONY ENVELOPE CO.

STRATHMORE THIN PAPERS: STRATHMORE PARCHMENT ONION SKIN, STRATHMORE BOND ONION SKIN, STRATHMORE BOND AIR MAIL, STRATHMORE BOND TRANSMASTER, REPLICA.

STRATHMORE

Makers of Fine Papers

STRATHMORE PAPER COMPANY, WEST SPRINGFIELD, MASSACHUSETTS
For More Information Circle No. 236 on Inquiry Card—Page 17



The Harris-Seybold Co., Cleveland, and Pitney-Bowes, Inc., Stamford, Conn., are jointly exhibiting a Macey collator at the National Business Show. This four-station machine gathers and assembles over 16,000 sheets of paper per hour in sets of four. The machines are also available in 8, 12, and 16-station models to handle a variety of sizes and weights of paper stock.

Circle No. 60 on Inquiry Card—Page 17



Speed-O-Stat Corp., New York, is marketing the Photorapid photo-copying machine. The machine produces exact, permanent copies of anything written, printed or drawn, whether the original is single or double-sided. It makes single or double-sided copies (to reduce filing space), transparent copies for use as masters with diazo or blueprint machines, tissue copies for airmail, negatives for paper offset plates, colored prints, card stock and clear acetate film.

Circle No. 61 on Inquiry Card—Page 17



PERMACEL TAPE CORPORATION, NEW BRUNSWICK, NEW JERSEY . . . a Johnson & Johnson company

For More Information Circle No. 237 on Inquiry Card—Page 17

OCTOBER, 1956

159

Just the newest reason why Hammermill Papers print better, type better, look better



HAMMERMILL'S NEUTRACEL® PROCESS ...to bring you better

EXCLUSIVE NEUTRACEL PROCESS
MAKES NEW HAMMERMILL PAPERS
MORE TYPEABLE, MORE
PRINTABLE, MORE WRITABLE,
MORE READABLE

created a demand for specific paper qualities best obtained by *blending* different papermaking fibers.

To meet this need, the fine paper industry has made countless attempts to unlock special fiber qualities that nature grows in northern hardwoods. Now Hammermill has found the key—in the development of the exclusive process that produces Neutrachel pulp. By this process Hammermill—and only Hammermill—extracts from hardwood its sturdy cellulose fibers with all their papermaking qualities intact.

Neutrachel's special properties blend with other quality fibers to bring to

Hammermill's line of business and advertising papers clearer, more attractive formation. See photos at right. You can see for yourself how Neutrachel provides a smoother, velvety surface for finer printing, typing, writing and carbon copies. And Neutrachel lends increased visual and printing opacity, greater bulk—while assuring the maintenance of the excellent strength and durability for which Hammermill papers are known.

Development of new papermaking processes that benefit the printer and paper user is an old tradition of the Hammermill Paper Company. Only a

MORE than a half century ago Hammermill introduced to America fine writing papers made entirely from softwood cellulose. New printing methods and new office equipment—developed in recent years—have



UNLOCKS THE SECRETS OF HARDWOOD business papers

few months ago, Hammermill-invented centrifugal pulp cleaners were installed to provide new, outstanding cleanliness to all Hammermill papers. To that important quality improvement is now added the development of Neutracel—a \$6,000,000 step forward to bring you Hammermill papers that 1) print better; 2) type better; 3) look better.

The improved qualities that Neutracel imparts to Hammermill papers are available now and for the future. Approved tree farming methods, practiced in Hammermill's forests, assure the perpetual growth needed for a continuous supply of Neutracel pulp.

You should see the improved Hammermill papers for yourself. Ask your printer to show you samples. Or, send the coupon at right, attached to your business letterhead. We'll send you a sample book of the new Hammermill Bond—foremost among the score of Hammermill grades that now contain exclusive Neutracel® pulp.

...yet

HAMMERMILL
Papers

with Neutracel's finer fibers, cost no more

Hammermill Paper Company,
1461 East Lake Road,
Erie 6, Pennsylvania

Please send me free a sample book of the new Hammermill Bond made with Neutracel pulp.

NAME _____

ADDRESS _____

CITY _____

ZONE _____ STATE _____



HOW WILL YOUR OFFICE LOOK IN 1970?

For a preview of the office of the future, don't miss this year's National Business Show in the vast, new New York Coliseum. Only the world's largest exhibition hall could house this gigantic show. The wonders of tomorrow and acres of ideas you can use profitably today.

NATIONAL BUSINESS SHOW

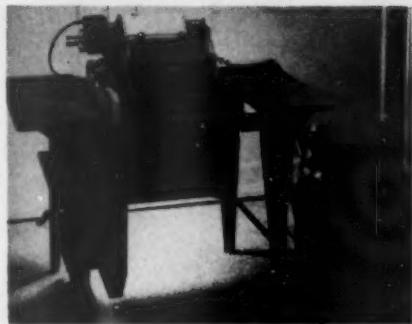


**October 15 through 19th
1 to 10 P. M. Daily
New York Coliseum**

• For information and hotel reservations
RUDOLPH LANG, Managing Director
33 West 42nd St., New York 36, N. Y.
Pennsylvania 6-6760

For More Information Circle No. 239 on Inquiry Card—Page 17

office
equipment



Commercial Controls Corp., Rochester, N. Y., has announced its newest development, the Flexowriter Duplex automatic writing machine cable-connected to a motorized tape reader. The operation, controlled entirely by punched paper tape, types personalized letters, invoices, orders and other documents, automatically, at the rate of 100 words per minute. Two punched tapes handle the operation—one for the date and body of the document and the other for name and address (also salutation if the document is a letter).

Circle No. 62 on Inquiry Card—Page 17



Duophoto Corp., New York, is marketing its new Duomatic photocopying machine. It will produce a black on white positive copy from any written, typed, or printed original, including microfilm enlargements. Transparent, translucent or opaque originals, single or double-sided, in any color, can be reproduced. It turns out 125 letter-size copies per hour, and will take material up to 14" in width.

Circle No. 63 on Inquiry Card—Page 17

How much would you guess a Revo-File can save you the first 37 minutes in your office?



\$25.00

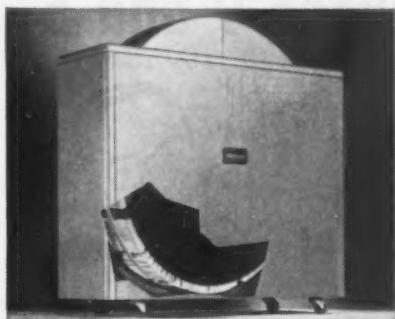
\$50.00

\$100.00

\$200.00

- 1. When you change** from slow-poke, money-wasting card files to Revo-File, no costly transposition is required. No new cards. No key-hole punched cards. Just pick up your present cards by handfuls, drop 'em into a

Revo-File, and go to work! Revo-File is the *only* single-drum rotary card file of its type that lets you do this. It saves an average of \$200 in change-over costs... often much more! (Is \$200 what you guessed?)



- 2. No chance of losing cards!** Revo-File has an exclusive, patented method of holding cards to drum without relying on holes punched in cards or other methods of attachment, which often cause wear, mutilation, and eventual "fall out" of cards from drum into base of file. (No trapdoor needed in Revo-File.)

- 3. No limits on work speed!** Since cards are not attached, one or hundreds can be removed and re-filed instantly. Easy to place Revo-File in most comfortable working position for any clerk. Cards come to her, not vice versa. All standard and most off-standard sizes accommodated. Manual and automatic electric selector models.

For big-volume card-filing! The new Mosler Roto-File can accommodate more than 80,000 cards. Has all the exclusive features of Revo-File... on a bigger scale. Electrically controlled drums rotate independently—several clerks can work at same time.

If you have 3,000 or more active cards which are used continuously for reference and posting, mail coupon, today!



Revo-Files, Roto-File Div. • The Mosler Safe Company, Dept. P-150, 320 Fifth Ave., New York 1, N.Y.
Please send me complete information about (check items you wish):
 Mosler Revo-File, world's finest rotary card file. Mosler Automatic Electric Selector Revo-File. New Mosler Roto-File for volume card-filing applications.

NAME _____ POSITION _____

COMPANY _____

ADDRESS _____

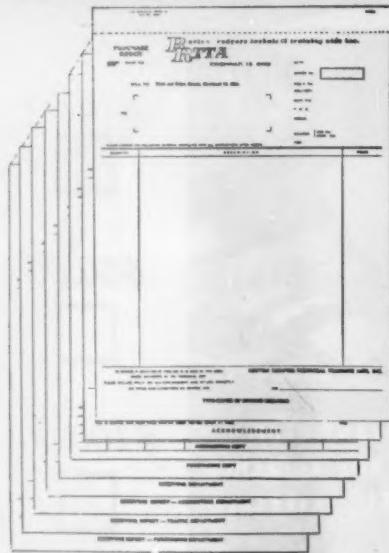
CITY _____ ZONE _____ STATE _____

revo-file

Another fine product of
The Mosler Safe Company

For More Information Circle No. 240 on Inquiry Card—Page 17

Now YOU Can Buy CARBON-INTERLEAVED PULL-OUT FORMS DIRECT



Custom tailored to fit your every operation. Any changes between parts, marginal designations, etc. which you require. Choice of paper colors for quick visual identification. Cross or skip perforations, numbering in any sequence - any position—internal punching. These are not gang-run production forms.

MODERN ROTARY PRESSES

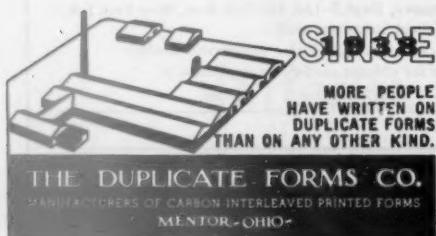
For premium quality, high speed, low cost forms by any process—Letterpress, Lithograph, Flexograph.

GOOD DELIVERIES

Any size order. No order too large. Completely staffed art and planning department to help you modernize or re-build your existing forms.

Get ALL the facts

Write, wire or phone for complete quotations - samples - and our current delivery schedule (issued weekly).



Circle No. 241 on Inquiry Card—Page 17
164

office equipment



A high speed machine that can make three photocopies per minute of the same original, or different originals, has been introduced by Hunter Photo-Copyist, Inc., Syracuse, N. Y. With the combination printer and processor, a normal sized negative can be exposed every 5 seconds; a complete cycle of exposing and

developing completed in 20 seconds. Because of the speeded-up operation, an operator can make three exposures in the time formerly required for one. A wire rack in the front of the machine holds exposed negatives, permitting successive exposure. The machine is a little larger than a typewriter and has a rheostat lighting control to regulate exposure.

Circle No. 64 on Inquiry Card—Page 17

A single-door duplicator cabinet is now being marketed by Mim-E-O Stencil Files Co., Chicago. Occupying only 20" square of floor space, the model 48SD has a pocket in the door that holds a large supply of file wrappers. A pull out shelf, 13" x 12 1/4", on the left side provides extra working space. The unit is all-welded steel and has four adjustable glides for leveling on uneven floors. Two supply shelves provide storage space for boxed stencils, masters, paper stock and gallon-size fluid containers.

Circle No. 65 on Inquiry Card—Page 17

How offices gain HOURS of "OVERTIME"—between 9 and 5 WITH FAST, AUTOMATIC

Federal DIAL INTERCOMMUNICATION

—the private, inside telephone system that saves miles of walking . . . cuts paperwork . . . enables every executive and employee to do more work per day!



- TRANSMITS data in seconds vs. minutes or hours . . . reduces memo-writing.
- QUICKENS over-all operations . . . your staff functions as a unified, fast-acting team.
- CURTAILS desk-hopping and needless conversation . . . keeps employees on the job.
- UNLOADS your switchboard . . . puts all inter-office calls on a separate dial system.
- SPEEDS incoming calls . . . gives faster service on the calls that talk "profit."
- REDUCES operator costs, equipment rental . . . cuts call-backs and unauthorized calls.
- IMPROVES customer relations . . . stops irritation and hang-ups . . . builds good-will.
- OPERATES 24-hours-a-day free of switchboard . . . serves 10 to any number of stations.

"Certified by a World of Research"



Write for booklet, to Dept. G-334
Federal Telephone and Radio Company
A Division of
International Telephone and Telegraph Corporation
100 KINGSLAND ROAD • CLIFTON, N. J.
For More Information Circle No. 242 on Inquiry Card—Page 17

The Victor "Flick" that outdates all other calculators

"FLICK" IT MULTIPLIES

"FLICK" IT DIVIDES

New Victor Automatic Printing Calculator

Saves You Costly Man-Hours Because it's Easier, More Accurate to Use

Here's the greatest advancement in calculators in a decade. This exclusive Victor feature lets you *multiply or divide* with a gentle "Flick" of your finger. No mental counting. "Up" to multiply . . . "Down" to divide . . . middle position to add or subtract—and all *automatically!*

The new Victor Calculator prints your figures *on tape*, just as you would write them. Automatic Constant lever holds figures for repeated division or multiplication. Exclusive Total Transfer button eliminates need for re-entering totals.

Find out how much this Victor "Flick" can do for you—look under "V" for Victor in the adding machine section of your classified phone book or mail the coupon below.

Victor . . . a business machine for every need . . . every budget



SELECT-O-MATIC Custom adding machines give you totals or sub-totals off the add-bar automatically. Super quiet, manual and electric.

EXECUTIVE adding machines. Budget priced. 10-key or full keyboard. Manual or electric.



Victor Adding Machine Co., Chicago 18, Ill.

Victor-McCaskey Ltd., Galt, Ontario

Manufacturers of Business Machines, Cash Registers, Business and Industrial Systems, Electronic Equipment, Electri-Cars.

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P-1056

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VELVET CROSSED THE PEN AND PENCIL

TRADE
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to bring you today's new writing tool for the office

Leading firms across the country are equipping their offices with the new VELVET ball PEN·cil because:

- it combines the best features of pencil and ball point pen
- wood barrel has lighter feel of a pencil for top writing comfort
- improves record keeping, lowers costs, raises efficiency in every department
- nothing to press, click or turn
- finest ball point mechanism
- no point to break, wear down or sharpen
- ink supply lasts for months

3 styles for every writing job:

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- Liquid Velvet. For economical, fluid "lead pencil" writing... and erasability. \$3.25 per dozen. Sold only through commercial stationers and selected stationery departments. Order today!

Prices slightly higher West of Rockies



Buy the
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dozen packs

VELVET ball PEN·cil

nothing writes like a Velvet

Write for sample on your office letterhead.

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For More Information Circle No. 244 on Inquiry Card—Page 17
166

SEE
the largest
SNAPSET
in the world!
created by
Watts
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Oct. 15-19 1 to 10 P.M. New York Coliseum

KEEP UP TO THE MINUTE
PREVIEW tomorrow's business forms today
--designed and printed by WATTS

Rotary & Flatbed Printing . . .
Business Forms Manufacturers Since 1897



For More Information Circle No. 245 on Inquiry Card—Page 17

**No other PAPER CUTTER
for the office
is built
to sell so low!**

The new MICHAEL PAPER CUTTERS are of all heavy steel construction for long life. The lever is properly balanced for easy cutting. After each cut when lever is returned, it is automatically locked with safety latch.

The back gauge easily moves forward and back. Cutting table has a permanent rule so that the back gauge can be set for any size.

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DUPLICATING
MADE EASIER . . .**

*Perfect for mimeo,
spirit duplicating and
multilith departments
in offices, industrial
organizations, banks,
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small printers and offset
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3 SIZES:
8 1/2", 14" and 20 1/2"

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INCORPORATED

145 WEST 45th STREET • NEW YORK 36, N.Y.

For More Information Circle No. 246 on Inquiry Card—Page 17
PURCHASING

office equipment

Douglas Furniture Corp., Chicago, is producing posture-correct chairs using General Electric's AR-480 polyester resin reinforced with glass fibers by Structurlite Plastics Corp. The chairs are said to have a tensile strength three times greater than steel. The chairs are available in a wide variety of colors and textures. Some feature hand-woven fibers, suggesting textile coverings. Others are solid colors ranging from eggshell white through blue, pink, yellow, charcoal and turquoise.

Circle No. 66 on Inquiry Card—Page 17



The Staplex Co., Brooklyn, has announced a brand new automatic electric stapling machine. The Stapl-A-Matic holds 5000 standard size, preformed staples, reloading takes about 2 seconds, and the stapling position is adjustable to a reach of 9 1/4", a calibrated scale on the side assures accuracy. The Stapl-A-Matic operates on a simple, single contact solenoid principle. The insertion of the material to be stapled activates the machine. The machine measures 11" in height, 18" in depth and 6" in width. It weighs 23 1/2 lbs. and uses 110 volts AC. DC models are also available.

Circle No. 67 on Inquiry Card—Page 17
(Please turn to page 169)

At N.Y. Business Show . . .

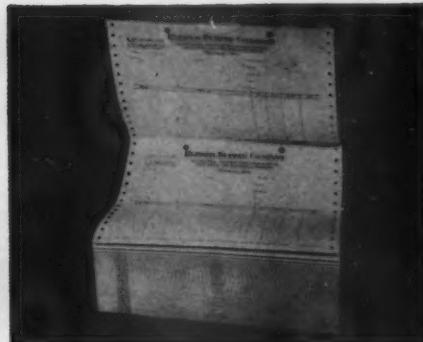
See the Complete Line of Office Forms and Systems.

For Low Cost, Top Quality . . .

Get the Facts about . . .



Hano Refolder Registers in 4 widths, electric or manual; all-aluminum Portables and pocket size Porta-Pak, plus cash drawer units.



Hano Litho-Tab marginal punched forms are trouble-free with better papers, more sensitive carbons. Stock Tab also available for many requirements.



One-Time Carbon Hano Snap-a-Parts, Multi-Snaps, Special and Custom plus special purpose forms, orders, memos, meter tickets, repair orders, invoices.



Low-Cost Standard Body Forms, semi-custom Han-o-Sav, plus extensive Custom Register form list . . . all with standard punching.

Hano — your "one-stop" source . . .

for time-saving business systems. For the right form or system for your specific need, you'll find Hano the only "one-stop" source. A complete line of Registers and Forms, Snap-a-Part sets, Continuous and Tab forms can solve your problem . . . at low cost. There's a Hano man or dealer ready to help you save time and money. May we have him contact you?



8-page folder shows Hano complete line. Available on request.

PHILIP
COMPANY INC.

General and Sales Offices: Warehouse and Branch Plant
HOLYOKE, MASSACHUSETTS MT. OLIVE, ILLINOIS

For More Information Circle No. 247 on Inquiry Card—Page 17



E. F. Bauman, Director of Purchases, Federal-Mogul Div., Federal-Mogul-Bower Bearings, Inc., Detroit, Michigan, says, "Due to the compactness and completeness of Conover-Mast Purchasing Directory, it is the most used."

SAVE 5% OR MORE ON WHAT YOU BUY

SAVE 5% on your purchases and you equal the profit on a 25% sales increase.

You can easily average better than a 5% saving in your purchased products. This is how:

Take no price for granted. Get comparative quotations on everything you buy.

Easiest way to do that is to keep Conover-Mast Purchasing Directory at your right hand. In a few seconds you can put your finger on a dozen or more reliable sources for practically anything you buy.

And when you use CMPD and

ask for six quotations, you get six—not four or five. No blanks. No more of this, "We stopped making that product." No more returned envelopes marked, "Out of business"—or "Moved."

That's because Conover-Mast Purchasing Directory is now 100% verified. Every single listing in it—about a quarter million—has been checked with the supplier—either direct or through Western Union. That saves you time, money, annoyance.

(Note: CMPD is believed to be the FIRST big buying guide to be 100% verified).

(Advertisement)

For More Information Circle No. 248 on Inquiry Card—Page 17

You Get Completeness With Ease of Handling

You know, of course, that buying guide completeness can't be measured on a poundage basis. With close to 300,000 manufacturers in the United States, no directory is "complete." Every directory seeks to supply you with the worthwhile sources.

Freedom from unwieldy bulk is largely a matter of superior indexing. Conover-Mast Purchasing Directory—newest of the buying guides—gives you the benefit of the most modern indexing system.

(Continued on page 169)

Save 5% . . . (continued)

You get the reliable supply sources for a given product, conveniently concentrated in one place. No scatteration. And no dilution. CMPD is a 100% industrial buying guide—no dog collar, corset, or cough syrup listings.

You get comprehensiveness without time-wasting bulk. You find what you want in half the time.

How You Can Profit by the Different Services in CMPD

1. PRODUCT SUPPLY SOURCES. Your chief use of CMPD is in getting the names of reliable firms that can save you money in the products you buy. And you can find what you want in a few seconds. Supply sources are listed the most convenient way—

First—alphabetically by product.

Second—then alphabetically by firm under each product.

2. ADDRESS SECTION. Often times you know the firm, but what is its address? The Conover-Mast Purchasing Directory address section gives you all the companies arranged in A to Z

(Advertisement)

order. And to help you still further, you get an extra address section separately bound. Use this yourself, or give it to your secretary or an associate.

(IMPORTANT: The address section both in CMPD and separately bound, gives you a key letter—A,B,C,D,E—showing the size of each firm, based on number of employees)

3. TRADE NAME INDEX. Sometimes you know the Trade Name, but who makes the product? You will make frequent use of the convenient Trade Name Section. Trade Names are conveniently listed from A to Z, with name of the maker.

4. CHEMICAL SECTION. You doubtless use some chemicals. Conover-Mast Purchasing Directory has an ingenious, special Chemical Section. A number code enables you to identify quickly the makers of the particular chemical you want.

5. MECHANICAL DATA. The handy Mechanical Data Section is exclusive with CMPD—tables and formulas you find most useful in your work.

Why So Many Prefer CMPD

A—You can find in CMPD what you want in half the time.

B—CMPD is surprisingly complete, owing to modern time-saving, space-saving indexing system.

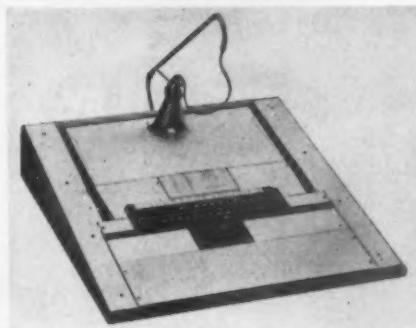
C—CMPD now frees you from annoying, time-wasting "Out of business" returned envelopes or replies stating "We stopped making that product." For Conover-Mast Purchasing Directory is now 100% verified—100% accurate—every listing checked with the supplier—either direct or through Western Union.

Price Comparing is Your Sure Route to Lower Costs

Nothing cuts your costs as fast as constant price comparing. And nothing makes price comparing so easy as CMPD. So keep a copy of CMPD at your right hand. Use it on practically everything you buy—and you can easily do better than a 5% average saving.

CONOVER-MAST PURCHASING DIRECTORY
205 East 42nd Street
New York 17, N.Y.

(Continued from page 167)



ProType, a low cost machine for setting display and headline type photographically, is being distributed by Mergenthaler Linotype Co. and its subsidiary, Davidson Corp., both of Brooklyn, N. Y. The device provides a wide selection of faces and sizes, 10,000 available currently. In all faces, the range is from 18 point to 90 point, with a range from 6 point to 90 point in some faces. The device is only 23½" square and weighs 20 lbs. ProType uses special sensitized paper and film not affected by normal incandescent illumination. The complete

fonts are on sturdy negatives, with the operator selecting one character at a time. The machine will take any size paper, from a small strip to 17" x 22". The operator can letterspace, word space, justify and mix typefaces for the same line. While development of the exposed paper or film follows standard procedure, no darkroom is needed as the emulsion is not sensitive to normal room lighting.

Circle No. 68 on Inquiry Card—Page 17

A pressure-sensitive label has been developed by Avery Adhesive Label Corp., Monrovia, Calif., for use with tabulating machines to speed a wide range of addressing and identification tasks. Supplied in roll-tape form with special perforated backing to permit simplified feeding, the labels cling to any clean, smooth surface without peeling or popping. Available in three stock sizes, Tabulabels rewind on an electric rewind unit after imprinting, providing operators with easy-to-handle-rolls.

Circle No. 69 on Inquiry Card—Page 17



A versatile system for recording conferences, conversations, speeches, etc., for fast playback and transcription, has been announced by Thomas A. Edison, Inc., West Orange, N. J. The new product, called the Edison Continuous Recorder, uses two standard Voicewriter dictation machines (model VPD-3) mounted in a cradle and plugged into a control unit. As one recorder nears the end of its disc, the other is switched on. In long conferences, the machines switch back and forth, as each disc holds about 15 minutes recording. Fresh discs may be inserted without interrupting the process.

Circle No. 70 on Inquiry Card—Page 17

office equipment



A 9-lb, portable, magnetic disc dictating-transcribing machine has been announced by **Magnetic Recording Industries, New York**. Known as the Voice-Master Challenger, it measures only 10" x 11" x 3-1/4", small enough to fit into a standard desk drawer. Fingertip controls on the microphone make it possible to dictate, listen back, and review without touching the

machine itself. Other features include; reusable and indestructible magnetic discs, automatic error correction, quick loading for a full hour's dictation, on-the-disc indexing, life-time recording head, and plug-in internal construction for easy servicing in the field. It is available with a choice of four different headsets or loudspeaker. It is housed in Kalistron, the new miracle fabric, and has a retractable carrying handle.

Circle No. 71 on Inquiry Card—Page 17

A machine that will write a complete letter from blank paper in one run — name, address, salutation, letterhead in color, date, text and signature — has been announced by **Addressograph-Multigraph Corp., Cleveland**. Called the Addressograph Model 1938 Letter Writer and Printer, it will produce a completely personalized letter and also print and identify a reply card. It will also print a return address and postal indicia simultaneously with the addressing of the envelope.

Circle No. 72 on Inquiry Card—Page 17



Royal Typewriter Co., New York, has announced the development of a new **typewriter-ribbon changer**. Fingers no longer come in contact with the inked ribbon, only the two plastic containers in which the ribbon is wound. That is, instead of the usual single spool containing the ribbon, Royal now provides a newly-designed plastic "Twin-Pac" package, containing two plastic containers. Circle No. 73 on Inquiry Card—Page 17

**ADDITIONAL
OFFICE EQUIPMENT
NEWS APPEARS ON
PAGE 348**

concerned with duplicating costs? Check the waste paper basket!



stencils — masters — copies

In arriving at your duplicating costs, have you included the rejects?

Stenafax
is electronic!
automatic!

Stenafax prepares your **mimeograph stencils**—**offset paper plates** • **single positive** copies with facsimile accuracy • push-button simplicity requires unskilled personnel • operates and shuts off automatically • **fast** • **economical**

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Please send Stenafax brochure to

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City & State.....

For More Information Circle No. 249 on Inquiry Card—Page 17



REDIFIX T W-2 TAX FORMS

WITH STATE FORM COMBINATIONS

SAVE MONEY

SAVE TIME

THE FASTEST SELLING W-2 TAX FORM

- One typing takes care of all filing requirements
- Easy to write, separate, address, mail and file
- With your imprint
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FREE!

Big new catalog of time-saving business forms for every business — standard forms, register forms, marginally punched bookkeeping forms, etc. Write for your copy today.

CONSOLIDATED BUSINESS SYSTEMS, INC.

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For More Information Circle No 355 on Inquiry Card—Page 17

PURCHASING



the calculating female figures on FACIT



Because Facit gets results — quickly and easily. Solve any problem single-handed, with the ten fastest keys to calculating ease. The fully automatic Facit — multiplies, divides, adds, subtracts — and does it all with the five fingers of one nimble hand.

FACIT INC.

404 Fourth Ave., New York 16, or 235 Montgomery St., San Francisco
The world's largest producer of calculators.

See and learn how to calculate in 10 minutes on the new CA1-13 and CS1-13 at the National Business Show — Booth 213-W

For More Information Circle No. 250 on Inquiry Card—Page 17

new products

and cost-saving ideas

These Epoxy Resins Cure at Room Temperatures

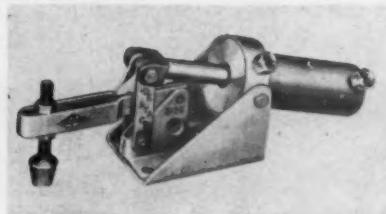


Three epoxy resin adhesives cure at room temperatures and under contact pressure to a strong solid state without forming volatile by-products. All three can be used for bonding aluminum, brass, copper, steel and other metals to each other, to glass and many plastics. They are each cured with different activators. Adhesive No. EC-1294 cures to a clear light amber colored material that has good machining properties. It affords high shear strength which may be as high as 4100 psi. Adhesive EC-1474 is a lower cost formula with lower shear strength of around 2015 psi. No. EC-1472 can be used as an adhesive where good flexibility and shock resistance are needed. They are pro-

duced by Minnesota Mining & Mfg. Co., 423 Piquette Ave., Detroit 2, Mich.

Circle No. 74 on Inquiry Card—Page 17

Toggle Clamp With Split-Second Action



An air-operated toggle clamp, model 810, is said by Detroit Stamping Co., Detroit, Mich., to provide positive split-second clamping in multiple or single unit use. Being only 12" long, 5-3/8" high and 3 1/4" wide, it economizes on space. Available with either U-bar or solid bar and retainer, the clamp has an expectancy of 400,000 cycles under normal operating conditions, while the air cylinder has an expectancy of 5 to 5 million cycles. Cylinder plunger is chrome-plated for corrosion-resistance.

Circle No. 75 on Inquiry Card—Page 17

Forms, Finishes Any Wood Surface



A newly developed tool, named Surform, is claimed by Stanley Tools, Div., The Stanley Works, New Britain, Conn., to be capable of forming and finishing all types of wood surfaces. It works up to ten times faster than rasps or files. Its cutting component is a high quality Sheffield steel unit having more than 450 separate, razor-sharp blades. Each cutting edge has a 35° angle and a semi-circular throat through which chips and shavings pass. In effect, every blade functions like a miniature block plane. There are two models, one can be used like a hand plane, the other like a rasp.

Circle No. 76 on Inquiry Card—Page 17

For More Information Circle No. 251
on Inquiry Card—Page 17→



Standard Steel forged flanges cut manufacturing costs for Elliott Company

For the heavy bolting ring flanges on their synchronous condenser shells, Elliott Company has turned to Standard Steel forged flanges. They get a better product at lower cost because:

- Flanges are forged very close to final tolerances, so expensive machining time is greatly reduced.
- Uniform grain structure permits faster drilling of bolt holes—40 in each flange.
- The high strength of Standard Steel forged flanges provides an ample safety

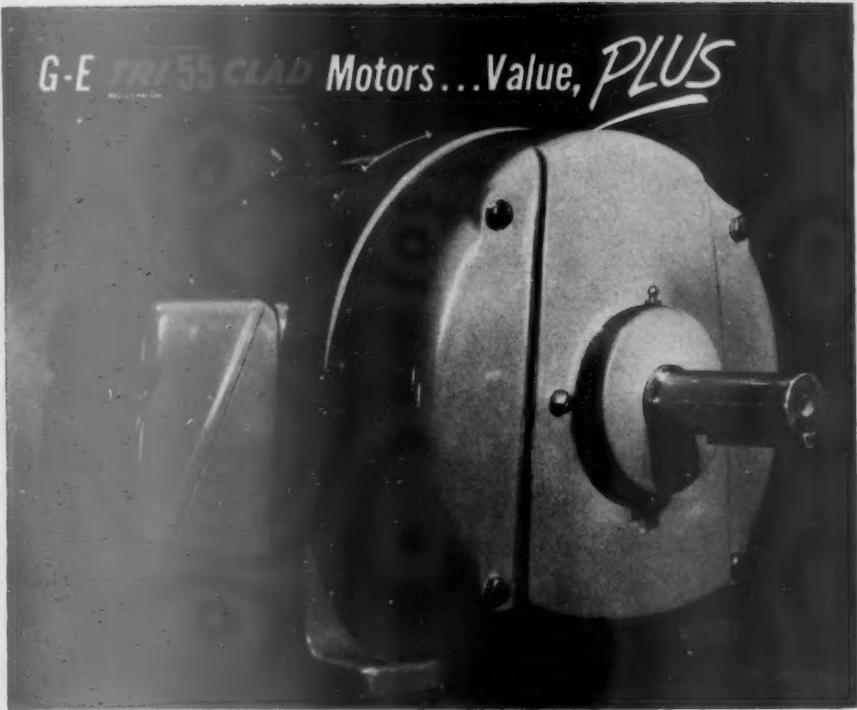
factor to withstand any accidental explosion pressures.

Next time *you* need rings, flanges, gear blanks, shafts, wheels, or special shapes—and need them fast—get our quotation first. For bulletin 10,000, write Dept. 8736, Standard Steel Works Division, BLH Corporation, Burnham, Penna.



STANDARD STEEL WORKS DIVISION BALDWIN-LIMA-HAMILTON

DIVISIONS: Austin-Western • Eddystone • Hamilton
• Electronics & Instrumentation • Lima • Madsen •
Loewy-Hydropress • Pelton • Standard Steel Works



General Electric **TRI 55 CLAD** motors are "job-matched" to cut operating costs

In the past two years, more than 2500 companies have saved thousands of dollars by asking General Electric application engineers to "job-match" the Tri-Clad '55' motor to their specific operating problems.

- These savings are from another important Tri-Clad '55' **PLUS** value—application engineering. For instance, G-E application engineering reduced a saw manufacturer's costs \$120 on every unit he produced. An oil well operator saved \$26 on each motor he bought. A blower manufacturer cut costs \$1157 in just eleven months.

- G-E application engineers in district offices throughout the country are in close communication with the Medium Induction Motor Department in Schenectady, N. Y. As a result, every new advance in the Tri-Clad '55' motor design is incorporated in each recommendation they make. Their services are valuable contributions G.E. offers American industry.

- Application engineering help is one more **PLUS** value you get



G-E application engineers can help you with all your motor problems. Using their skills to "job-match" the new Tri-Clad '55' motor to your specific needs can add up to real savings.

when you specify Tri-Clad '55'—the motor that is triple-protected against electrical, physical and operating damage. Order from your local G-E Distributor's stock or your nearest G-E Apparatus Sales Office. These Tri-Clad '55' motors, in 7½-30 hp ratings, are manufactured by the Medium Induction Motor Department, General Electric Co., Schenectady 5, New York.

866-9

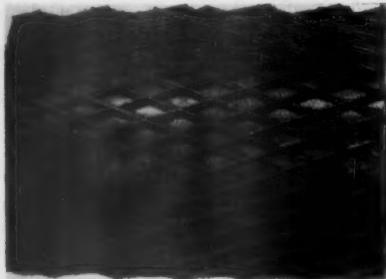
Progress Is Our Most Important Product

GENERAL  **ELECTRIC**

For More Information Circle No. 252 on Inquiry Card—Page 17

new
products

Conveyor Belt Cover Grips Any Type Package



A conveyor belt embodies a three stage design to give it gripping power to handle all types of packages from cans to rough cloth bags on inclines ranging from 30 to 35 degrees. Criss-crossing ribs form small, open-center diamonds on the surface of the belt. The ribs are constructed with a "step-down" design so that, as each step in the ribs wears down, a new rib is presented for use. The cross angle rib design, a development of the Goodyear Tire & Rubber Co., Akron 16, Ohio, provides individual gripping "fingers" that adjust to uneven surfaces.

Circle No. 77 on Inquiry Card—Page 17

Industrial-Truck Batteries For Long Life

A line of batteries for electric industrial trucks has been designed for every motive power capacity, with a 40 amp/hr positive plate for standard-height batteries; the 60 amp/hr for high type batteries and the 120 amp/hr for extra high batteries. An acid-proof seal eliminates corrosion and wet covers. The active battery material is regenerative oxide. Some of the free lead in the core is actually converted by electro-chemical action into additional active material for added plate life. They are made by Gould-National Batteries, Inc., Trenton, N.J.

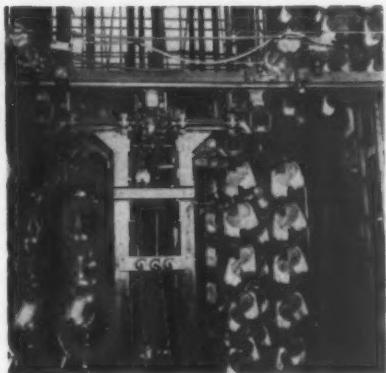
Circle No. 78 on Inquiry Card—Page 17

Masking Tape Combines Thinness, Tensile Strength

A pressure sensitive flatback masking tape, introduced by the Permacel Tape Corp., New Brunswick, N.J., has a 4 mil rope paper backing in an off-white color. The backing has been especially treated to give tape high tear resistance coupled with thinness and high tensile strength. Among recommended uses are heavy duty applications, such as sealing boxes when extra strength is needed, or holding of doors, lid covers and other parts of appliances during shipping. In addition to adhesion to steel of 50 oz/in width, the tape has high adhesive value to a wide variety of surfaces under severe handling conditions.

Circle No. 79 on Inquiry Card—Page 17

Rapid Metal Part Finishing With Transfer Unit



An automatic transfer unit, operating between a metalfinishing machine and a monorail conveyor, loads and unloads work racks on the same indexing sequence as the finishing machine. This eliminates manual handling of parts entering or leaving the plating sequence, speeding up operations almost to the point of full automation of metalfinishing. The system, developed by Hanson - Van Winkle - Munning Co., Matawan, N.J., is said to be particularly valuable at installations where short load-unload periods prevail, since the automatic transfer unit keeps pace with the metalfinishing cycle.

Circle No. 80 on Inquiry Card—Page 17

G-E TRI-CLAD Motors...Value, PLUS



General Electric TRI-CLAD motors have cast-iron frames for longer life

To provide optimum protection against the effect of fumes and liquids in corrosive atmospheres, General Electric Tri-Clad '55' a-c motors are designed with cast-iron frames. This "built-in" protection is another Tri-Clad '55' **PLUS** feature which provides longer motor life in tough applications.

• **High corrosion resistance** of cast-iron frames has been proved by G-E's Medium Induction Motor Department, Schenectady, N. Y. After a long series of tests in corrosive atmospheres, only a superficial film of corrosion appeared on the surface of a Tri-Clad '55' motor. Subsequent tests showed no corrosion below this film.

• **Greater rigidity and strength** of cast-iron frame and end shields prevent motor from being twisted out of line when accidentally bumped by heavy objects, thus protecting bearing alignment.

• **Better protection** against corrosion and misalignment is another **PLUS** value you get when you specify



Built for rugged service—indoors or out—
G-E Tri-Clad '55' motors give long-life dependability even in corrosive atmospheres.

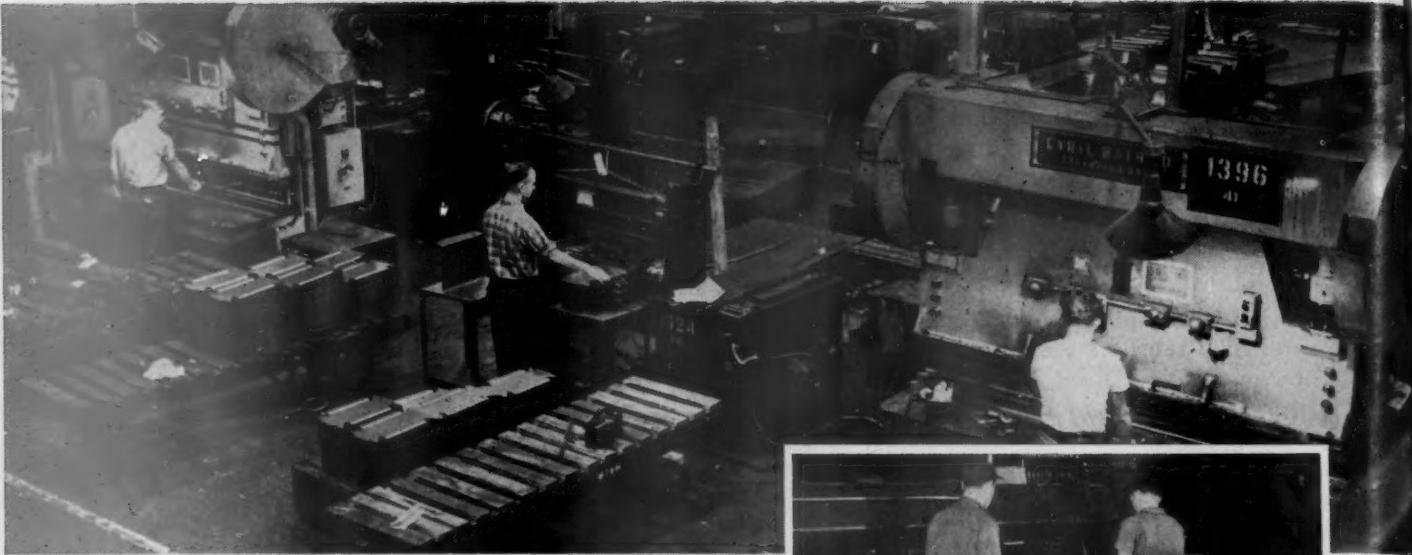
Tri-Clad '55'—the motor that is triple-protected against electrical, physical and operating damage. Order from your local G-E Distributor's stock or nearest G-E Apparatus Sales Office. To find the name of your nearest G-E Motor Distributor, look in the classified section of your phone book.

Tri-Clad '55' motors, in 7½ to 30 hp ratings, are manufactured by the Medium Induction Motor Department, General Electric Co., Schenectady 5, New York. 866-10

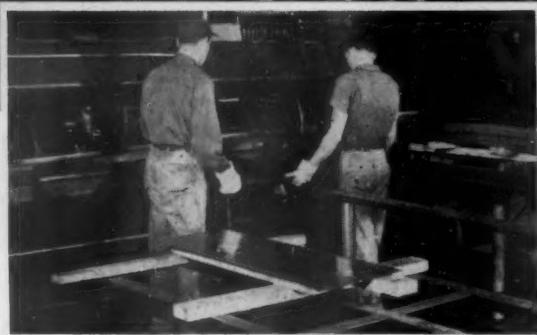
Progress Is Our Most Important Product

GENERAL ELECTRIC

For More Information Circle No. 253 on Inquiry Card—Page 17



1 PUNCHING—Presses used for punching holes, knockouts, and stamping small parts are strategically located throughout our plants. Some of them run at a rate of 108 strokes a minute, and their capacity runs up to 250 tons. Small boiler-jacket parts are being stamped here for United States Radiator Corporation.



2 SHEARING—Berger shears operate from 40 to 60 strokes a minute. They will cut sheet steel up to 14' on the shortest dimensions, and medium-hard stock up to $\frac{3}{8}$. Operators above are shearing sheet steel that will be processed into boiler jackets for the United States Radiator Corporation.

PLANNING OR FABRICATING A SHEET STEEL PRODUCT?

... Republic can take the

You may not realize how many different products are made in Republic's Berger Division plants because many are fabricated for other manufacturers and marketed under their brand names. We will manufacture *your* product in volume runs—engineer, fabricate, finish, pack and ship, all to *your* specifications.

Some of our contract-fabricated products are completely assembled units with operating mechanisms installed. Others are sheet metal assemblies that leave our plants finished with a prime coat, ready for final finishing, assembly and packing by our customer.

Our large stock of standard tools and dies and the specialized equipment of our Berger Plants are available to you. Often we can reduce costly tooling investments be-

cause we already have the tools to do the job. Because you use our facilities, you can eliminate the overhead problems of building or expanding your plant.

Constant research and development at Berger have resulted in advanced processes and equipment to make your fabricated sheet steel products more attractive, and more economical. Furthermore, our facilities and fabricating experience provide you with the same high quality you see in our own products—lockers, office furniture, shelving and steel kitchens.

If you have a sketch or blueprint, send it along to us with complete specifications. We'll tell you promptly what Berger's specialized service can do for you. Learn more details in Bulletins 793 and 908.

REPUBLIC



World's Widest Range of Standard Steels



3 FORMING—Brakes running at speeds up to a stroke a second range in capacity from 60 to 500 tons making possible production of a variety of items and gages simultaneously. Operators shown here are forming boiler jacket backs. The next stop will be the welding department.



5 PAINTING—We're equipped to paint over 87,000 square feet of steel surface each hour. Equipment includes mechanical bonderizers and degreasers for cleaning mill stock parts; 32 spray booths, six mechanical dip tanks . . . plus 40 baking ovens to assure beautiful, lasting, baked-on finish. And we can match your sample for color.



4 WELDING—Berger's major plant facilities include the very latest welding equipment and techniques. For every requirement there's a specific unit located to do the best job most economically. Eighty-eight welding units are available. The operator above is spot-welding stiffener channels.

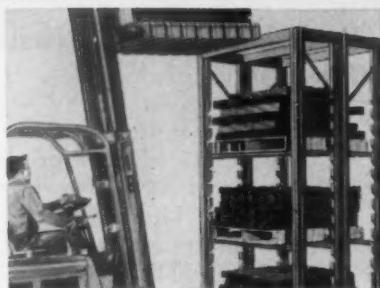


6 PACKING AND SHIPPING—Boiler jackets are shipped in cartons, knocked down. Packing equipment includes newest machines for cratemaking and automatic nailing. Beyond our doors, more advantages—you are shipping from centrally located Canton, Ohio.

whole job off your hands



INDUSTRIAL LOCKERS—These popular Republic Double Tier Lockers are fabricated at Berger, long a leader in the manufacture of all types and sizes of steel lockers for every requirement. Berger will help you plan your locker installation. Send coupon for details.



PALLET RACKS—Another Republic product made by Berger makes it easy to palletize bulky items of tremendous weight. Rack permits two-way entry . . . plus removal of pallets from any level without unstacking and restacking. Sizes available up to 10 feet high.



WEDGELOCK STEEL SHELVING—The world's strongest shelving, specifically designed for high stacking of enormous weights. Joints actually get tighter as the weight increases. There's no distortion or instability. Wedgelock is completely flexible for easy rearrangement.

STEEL

and Steel Products

REPUBLIC STEEL CORPORATION

Dept. C-2432
3126 East 45th Street
Cleveland 27, Ohio

Please send me additional information on:

- | | |
|---|---|
| <input type="checkbox"/> Berger Fabricating Facilities
(Bulletins 793 and 908) | <input type="checkbox"/> Pallet Racks |
| <input type="checkbox"/> WedgeLock Steel Shelving | <input type="checkbox"/> Industrial Lockers |

Name _____ Title _____

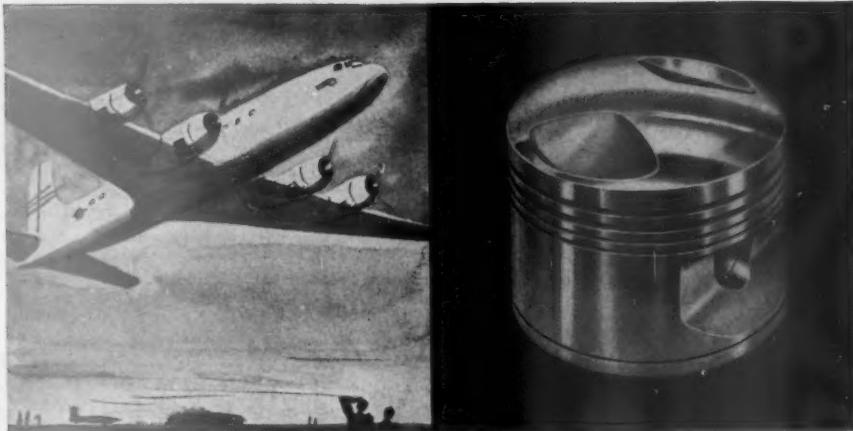
Company _____

Address _____

City _____ Zone _____ State _____



Ice Scoops and Aircraft Pistons



Thompson Light Metal Castings and Impact Extrusions Serve All Industry

YES, there is a connection — both ice scoops and aircraft pistons are products of Thompson's versatile Light Metals Division.

Ice scoops, used in making cold soft drinks, and pistons, used in high-speed aircraft engines are but two of the many light, strong, durable castings being designed, developed and produced by Thompson's exacting engineers.

Over 50 years experience in research and manufacture of precision metal parts enables Thompson today to offer aid to all forms of industry. Thompson is now producing light metal castings for such diversified products as aircraft and washing machines; buses and garbage disposers; tractors and outboard motors; automobiles

and industrial engines.

Regardless of your product, if you use castings or impact extrusions, Thompson's creative engineers will gladly show you where and how you can simplify your operations and save on costs with Thompson Light Metals Castings.

We want to quote on your plans and specifications. Write, wire or phone Dept. P-10, Light Metals Division, Thompson Products, Inc., 2269 Ashland Road, Cleveland 3, Ohio 1-6765.

You can count on
Thompson
Products

LIGHT METALS DIVISION

2269 Ashland Rd. • Cleveland 3, Ohio

For More Information Circle No. 255 on Inquiry Card—Page 17

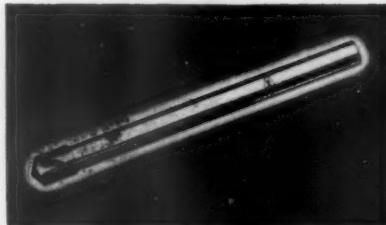
new
products

Paint With Multi-Colored Effect

A varicolored paint product, when sprayed over regular finishes on walls, woodwork, furniture, etc., produces a multicolored effect. Composed of white, gray and brown flecks, the lacquer emulsion, requires no complex equipment or spray techniques for application. Normal spray application of the product covers about one-third of the original background wall color. Because the color flecks are suspended chemically, the three hues remain separated during the spraying process and thus produce a speckled finish with a custom-styled appearance. It is produced by Pittsburgh Plate Glass Co., 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.

Circle No. 497 on Inquiry Card—Page 17

Carbide Die Drills Salvage Hardened Parts



A line of carbide die drills has been designed by Whitman & Barnes, 40600 Plymouth Rd., Plymouth, Mich., for drilling hardened die steel. According to the company, the drills permit hardened parts to be salvaged economically without annealing, reworking or rehardening. In addition, the drills can be used for cutting through hard outer cases and for drilling intricate parts in which it may be advisable to postpone drilling operations until after hardening. Drills are available in sizes 1/16" to 3/4" and in sets.

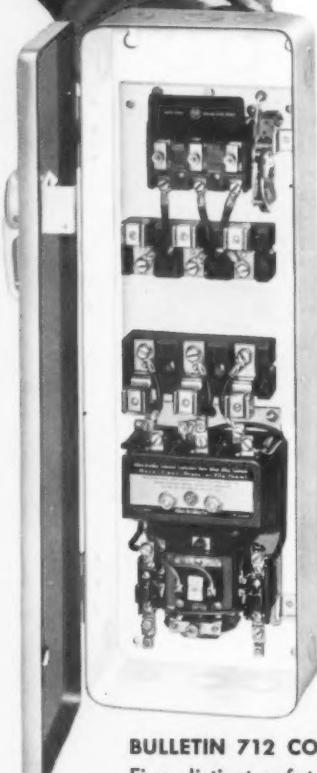
Circle No. 81 on Inquiry Card—Page 17
For More Information Circle No. 256
on Inquiry Card—Page 17→

there's a combination starter you KNOW is Safe!



OPERATING LEVER CAN BE PADLOCKED IN "OFF" POSITION

You can use from one to three padlocks to lock this starter in the "off" position—or, for unusual applications, change it to permit padlocking in the "on" position.

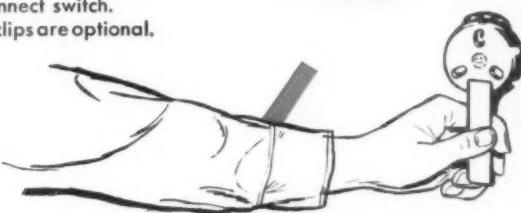


COVER ITSELF CAN BE PADLOCKED

Provision for locking the cover to the base of the cabinet with a padlock eliminates all possibility of tampering with the mechanism.



Bulletin 712
Combination Starter
consists of a standard
Bulletin 709 across-the-line
starter mounted in a cabinet
with an A-B manual
disconnect switch.
Fuse clips are optional.



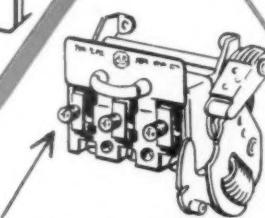
TO OPEN COVER LEVER MUST BE IN "OFF" POSITION

The disconnect switch lever is so interlocked that the cover of the cabinet cannot be opened until the disconnect switch is "open" and the starter is "dead."



INSULATING SHIELD COVERS "LIVE" LINE TERMINALS

With the cover open, only the incoming line terminals are "alive"—and in Allen-Bradley Bulletin 712 starters, these are covered with an insulating shield.



MOVABLE CONTACTS ARE PLAINLY VISIBLE IN "OFF" POSITION

When in the "off" position, the movable disconnect switch contacts show above the arc hood in plain view. Welded or sticking contacts can be detected instantly—a reliable safety signal.



ALLEN-BRADLEY
MOTOR CONTROL
QUALITY

BULLETIN 712 COMBINATION STARTER

Five distinct safety features give "plus value" to this new line of Allen-Bradley Bulletin 712 Combination Starters. And—you also get the design simplicity and the many other advantages for which the Allen-Bradley solenoid starter has earned its "quality" reputation.

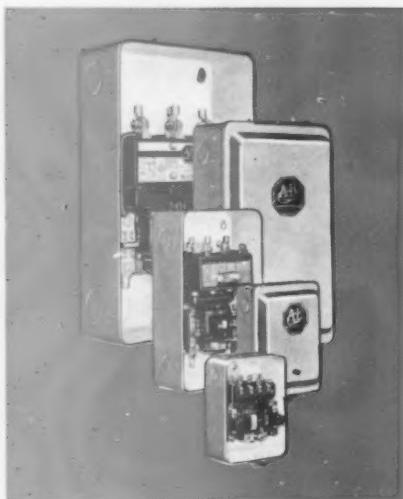
Available in NEMA Types 1, 4, 7, 9, and 12 enclosures, from 1 to 100 hp, 220v; 200 hp, 440-550v.

This simple design remains "tops"



Only one
moving part-

*that's why it's good for
millions of operations!*



Shown above are five sizes of the Bulletin 709 across-the-line solenoid starters. Three larger sizes are also available with a maximum rating of 300 hp, 220 volts; 600 hp, 440-550 volts.



ALLEN-BRADLEY
SOLENOID MOTOR CONTROL
QUALITY

Allen-Bradley Co., 1316 S. Second St., Milwaukee 4, Wis.
In Canada—Allen-Bradley Canada Ltd., Galt, Ont.

MICRO precision switches

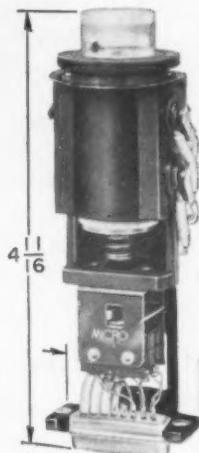
...THEIR USE IS A PRINCIPLE OF GOOD DESIGN



there is always
"SOMETHING NEW"
at MICRO SWITCH
for product designers

Experienced designers know both time and money are saved when they check with MICRO SWITCH on their complex switching problems. If we have not already solved their problem, MICRO SWITCH engineering is experienced in cooperating with product designers to quickly develop a precision switch to meet the requirements.

Here are four such new switches, each developed to meet a specific need, each capable of many variations of actuation, circuitry and housings.



**3-LIGHT
PUSHBUTTON
SWITCH
FOR COMPLEX
CONTROL PANELS**

"PB" Series 3-light pushbutton actuated switch

Here is a new, unique indicating pushbutton switch which lights in three different colors. This compact assembly is the result of an original requirement for a "super-reliable" long-life pushbutton switch for use in computer consoles for guided missiles control systems.

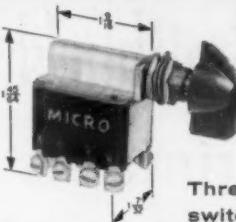
Designed for use in applications where *absolute dependability* is required, this switch is manufactured under extremely careful quality control procedures. The result is a reliable life through hundreds of thousands of operations.

A special, exclusive feature is the incorporation of a "radio tube" type connector, or plug-in base, which carries all the connections to the basic switches and lamp terminals. The entire assembly is easily pulled out for lamp replacement. (Send for Data Sheet 110)

MICRO SWITCH Engineering is at your service from convenient branch offices in key cities everywhere. It is as close as your telephone. Consultation costs you nothing. Can save you time and money.

For More Information Circle No. 257 on Inquiry Card—Page 17

OCTOBER, 1956



**THIS TOGGLE
SWITCH HAS LONG
LIFE AND BETTER
DETENT "FEEL"**

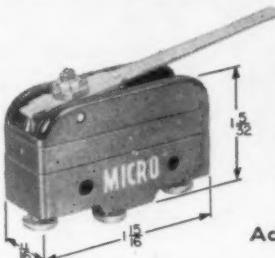
Three-position rotary type toggle switch. "TR" Series

Here is a new solution to the problem of mechanical actuation of many circuits with a single manual motion. This new series of "TR" switches offers all the advantages of a toggle switch mechanism plus *longer operating life and better detent "feel."*

These switches provide a high electrical capacity in a very small space, permitting the elimination of relays and other electrical devices in many circuits.

They are rugged enough for most airborne and industrial applications and have successfully passed rigid tests for impact, shock, acceleration and vibration.

The "TR" switch shown is a four-pole double-throw switch with 12 terminals. It is maintained in all three actuation positions: on-off-on. Other "TR" switches are available with up to 24 terminals (8 poles). (Send for Data Sheet 112)



**PRECISE,
UNERRING ACTUATION
THROUGH MILLIONS
OF OPERATIONS**

Adjustable lever actuated switch

An adjustable lever actuator on this switch permits close adjustment of the operating point without removing the switch from its mounting.

This switch is designed for use on such equipment as timers, computers or other multiple-mounted switch devices which require *precise, unerring actuation through millions of operations.*

The operating position is adjustable through .210 inch. The switches are available with a wide selection of pre-set operating characteristics. They are also available with split-contact double-throw circuitry. (Send for Data Sheet 100)



**THIS SWITCH GIVES
PRECISE PERFORMANCE
UNDER MOST
EXTREME CONDITIONS**

The MICRO "EN" Switch is completely sealed, cylindrical in shape. Tests have shown its precise performance to be unaffected by ice-coating at -65°F or by heat to +180°F. A thousand hours in salt brine spray or 30 days operation at 104°F (95% humidity) still finds it going strong—and precisely. No chattering of contacts, no loosening of parts occurs during vibration tests of 10 to 500 cycles per second. Contact arrangement is double-pole, double-throw. Weight (without leads) 2 1/2 oz.

(Send for Data Sheet No. 105)

MICRO SWITCH

A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

In Canada, Leaside, Toronto 17, Ontario • FREEPORT, ILLINOIS



ALL your Customers
want a COOKED
Gwaltney
OF SMITHFIELD, VA.
Smithfield Ham
this Christmas



and all YOU have to do is send us your list...
we will mail the hams direct.

Average size 7 to 10 lbs. cooked.

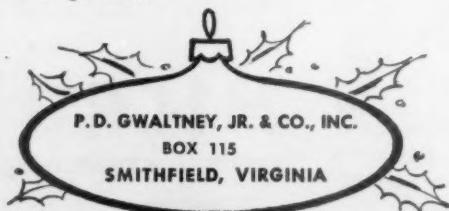
GWALTNEY peanut-fed SMITHFIELD Hams are aged, cured, seasoned by secret processes handed down to us from Colonial days. Long, patient smoking over hickory and apple woods, rare spices and herbs, have made their goodness famous with gourmets throughout the world. A Cooked GWALTNEY SMITHFIELD HAM will be the most delightful, most highly appreciated gift you ever sent!



Each ham carefully mailed
in this sturdy, safe,
GWALTNEY gift-package.

Gwaltney OF SMITHFIELD, VA.
BACON in Christmas-
Gift Slabs!

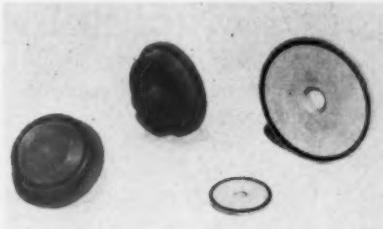
Unusual? Sure! And Virginia-cured for an unusually hearty welcome. Exceptional, yet inexpensive. Average weight 7 to 10 pounds.



For More Information Circle No. 258 on Inquiry Card—Page 17

new
products

Rubber-to-Metal Bonding
Seals Piston Valves



Trade named "Permadizing," a rubber-to-metal bonding process, developed by Stillman Rubber Co., Culver City, Calif., is claimed to provide steel-smooth sealing surfaces for shut-off valve primary piston seals, installed on aircraft fuel valves. Previous to development of this type, the piston seals were 3-piece units. Designing the unit as a one-piece part has eliminated time-consuming hand assembly and costly threading to provide an optically-smooth sealing surface, assuring perfect sealing even at near-zero pressure as the fuel sloshes against side of fuel tank.

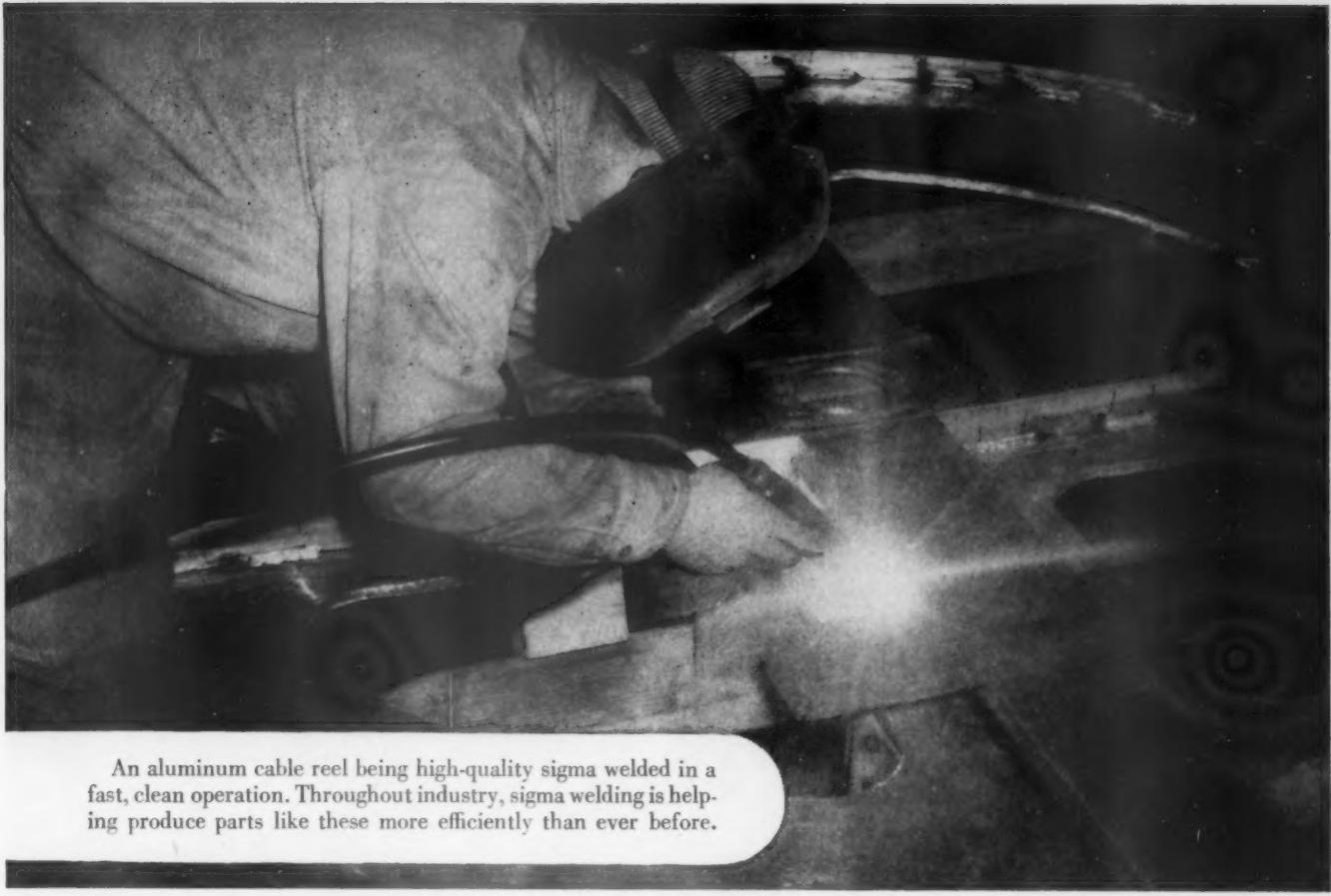
Circle No. 82 on Inquiry Card—Page 17

Tester Simplifies Torque
Wrench Calibration



Baldwin-Lima-Hamilton Corp., Philadelphia 42, Pa., has on the market a tester which measures torque on wrenches electrically by means of special resistance wire strain gage type torque transducers. The torque is sensed by small interchangeable torque

(Please turn to page 186)



An aluminum cable reel being high-quality sigma welded in a fast, clean operation. Throughout industry, sigma welding is helping produce parts like these more efficiently than ever before.

SAVED-50% of fabricating cost... by using SIGMA WELDING

Sigma welding's combination of automatic wire feed, and dependable argon gas-shielding accounts for the fifty per cent cost saving made in fabricating aluminum cable reels like the one shown above. Top quality welds are made in these $\frac{1}{4}$ and $\frac{1}{2}$ inch thick aluminum parts at speeds up to 20 inches per minute—and no post weld treatment is necessary.

The Ease of Handling gained by automatic wire feed both simplifies and speeds welding operations. A shield of inert argon gas envelopes and protects the weld puddle from harm-

ful effects of the atmosphere, and eliminates need for flux.

Sigma Welding Is Ideal for a Wide Range of Jobs because it joins all commercially fabricated metals, and can attain full penetration up to $\frac{1}{4}$ inch in a single pass. A complete line of portable manual, and automatic mechanized apparatus is available—and all are easy to operate and maintain.

For more information on sigma welding, or on any of LINDE's modern methods of joining metals, call your local LINDE representative—or write for free illustrated literature. Start saving now, do it today.

Linde Air Products Company
A Division of Union Carbide and Carbon Corporation

30 East 42nd Street UCC New York 17, N. Y.

Offices in Other Principal Cities

In Canada: LINDE AIR PRODUCTS COMPANY

Division of Union Carbide Canada Limited, Toronto

The term "Linde" is a registered trade-mark of Union Carbide and Carbon Corporation.

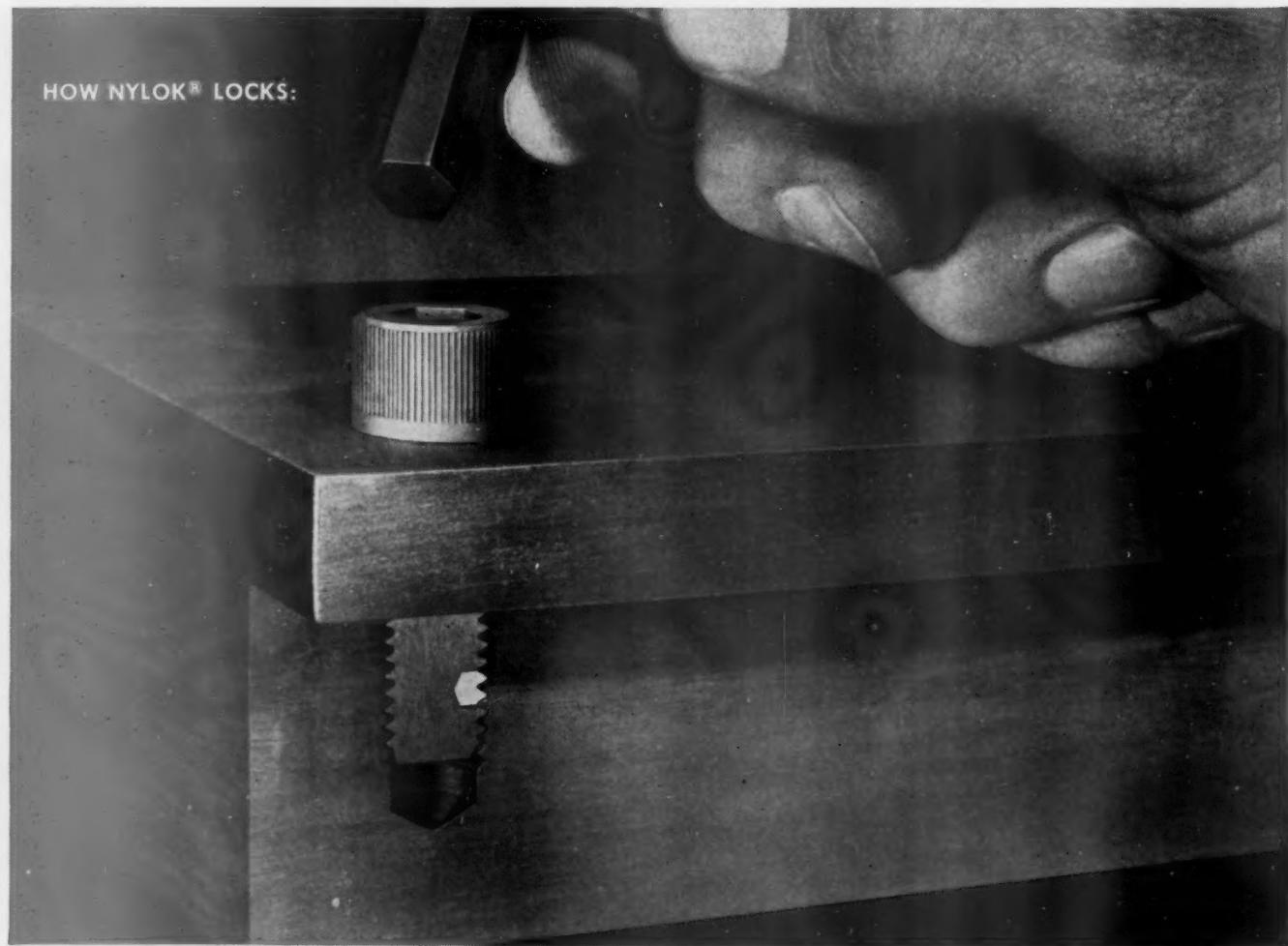
OCTOBER, 1956

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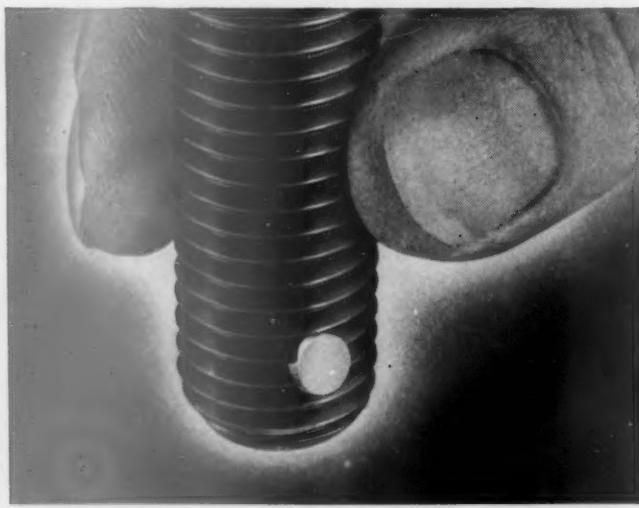
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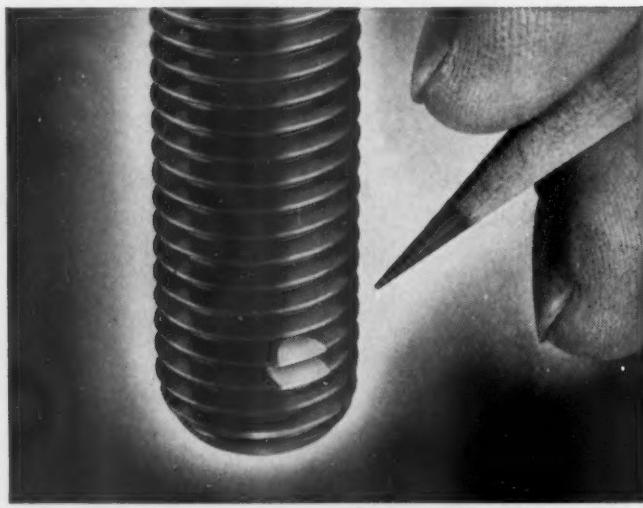
NEW—a complete line of socket screw products



LOCKED! The tough, resilient nylon pellet keys itself into the mating threads. It forces threads together, and locks the screw securely.



BEFORE ASSEMBLY. The nylon pellet projects slightly beyond male threads. When assembled, female threads will be impressed into it. Pellet locks effectively whether the screw is seated or not.



AFTER REMOVAL. "Plastic memory" of pellet has expanded impressed threads to greater diameter than screw threads. Screw can be used repeatedly. In use, "memory" keeps threads tightly locked.

self-locking UNBRAKO that won't work loose

**They simplify design and
save production time**

UNBRAKO socket screws are now available embodying the Nylok* self-locking principle. Nylok provides a truly practical new solution to the problem of making screws self-locking.

An UNBRAKO screw with Nylok is a single self-locking unit. No auxiliary locking devices are needed. Just thread the UNBRAKO into any tapped hole. *Seated or not*, it locks positively wherever wrenching stops. The tough, resilient nylon pellet forces mating threads together and holds tight. The screw will not shake loose.

You save production time when you build products with self-locking UNBRAKOS. And you get greater simplicity in design with less bulk and weight. The number of parts you must assemble to achieve full locking action is reduced to the absolute minimum. Lockwashers under screw heads are no longer necessary. Costly wiring of cross drilled heads is eliminated. So are cotter pins and complex multiple set screw installations.

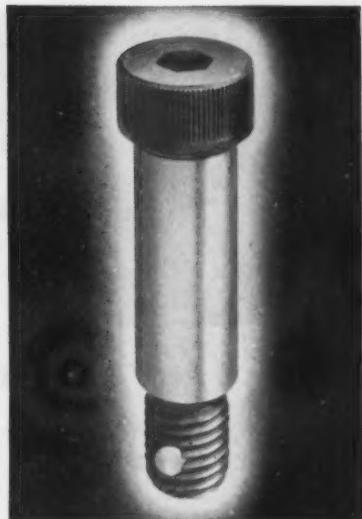
Self-locking UNBRAKOS are completely reusable. They have uniform locking and installation torques—with no galling or seizing on mating threads. They successfully withstand temperatures from -70° to 250°F . And, on properly seated screws, the pellet acts as a liquid seal.

Self-locking UNBRAKO socket screws come in a complete range of standard sizes and materials. See your authorized industrial distributor. Technical data and specifications are detailed in Bulletin 2193. Write us for your copy today. Unbrako Socket Screw Division, STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

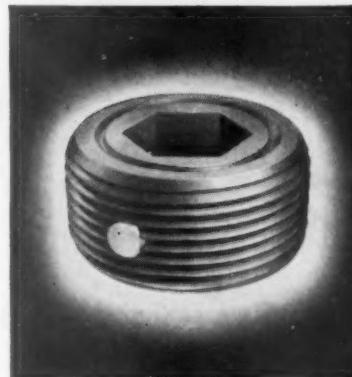
*T.M. Reg. U.S. Pat. Off., The Nylok Corporation



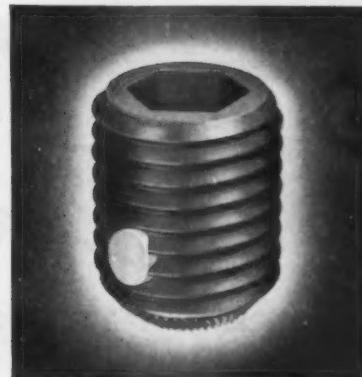
Socket head cap screws. Standard sizes #6 to 1 in.



Socket shoulder screws. Standard sizes $\frac{1}{4}$ to $\frac{3}{4}$ in.



Socket pressure plugs. Standard sizes $\frac{1}{8}$ to $1\frac{1}{4}$ in.



Socket set screws. All standard point types. Standard sizes #6 to 1 in.



Flat head socket screws. Standard sizes #6 to $\frac{3}{4}$ in.



Button head socket screws. Standard sizes #6 to $\frac{3}{8}$ in.

UNBRAKO SOCKET SCREW DIVISION

STANDARD PRESSED STEEL CO.

SPS
JENKINTOWN PENNSYLVANIA

For More Information Circle No. 260 on Inquiry Card—Page 17



this truck



this terminal



this control room



this routing guide



**are at
your service**

...all key phases of SPECTOR'S

CUSTOMIZED

FREIGHT TRANSPORTATION SERVICE

Today's purchasing agent knows the importance of efficient, engineered transportation in controlling the cost and flow of materials used in his plant. His increasing reliance upon motor transportation over the past decade attests to its many comparative advantages—its flexibility, its speed, its versatility, its economy.

Serving more than 5000 industrial and commercial points in 37 states, Spector enables the progressive purchasing agent to broaden his list of sources, reduce over-all inventories and capital investment, coordinate his inbound materials with the distribution of plant output.

Get the facts from your traffic manager or your nearest Spector representative.

A U.S. Custom Bonded Common Carrier



SPECTOR FREIGHT SYSTEM, INC.

General Offices: 3100 S. Wolcott Avenue, Chicago 8

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St. Louis • Springfield (Mass.) • Worcester

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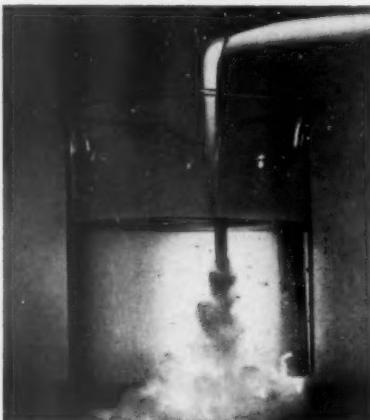
new products

(Continued from page 182)

pick-ups on which SR-4 strain gages are bonded. The torque measuring system consists of an electronic amplifier and an indicating instrument with rotating dial on which torque can be read in inch/lb. Loads are applied on the handles of torque wrenches hydraulically through an adjustable fulcrum and the tester is powered by plugging into a 115 v, 60-cycle electric line.

Circle No. 83 on Inquiry Card—Page 17

Silicone Defoamer Effective After Freezing, Boiling



A faster-acting, more stable defoamer, "Silicone Antifoam B," has been developed by Dow Corning Corp., Midland, Mich. Useful in a wide range of applications, the product is effective at concentrations of 3 to 30 ppm. Instantly dispersible in aqueous systems, this silicone defoamer may be added "as is" without stirring. It has extremely small particle size and, therefore, stays in suspension longer. Remarkably resistant to heat or cold, it retains its effectiveness even after being frozen or boiled. Because of this, it is effective during sterilization, also, storage problems are reduced to a minimum.

Circle No. 84 on Inquiry Card—Page 17

Powell Lubricated Plug Valves

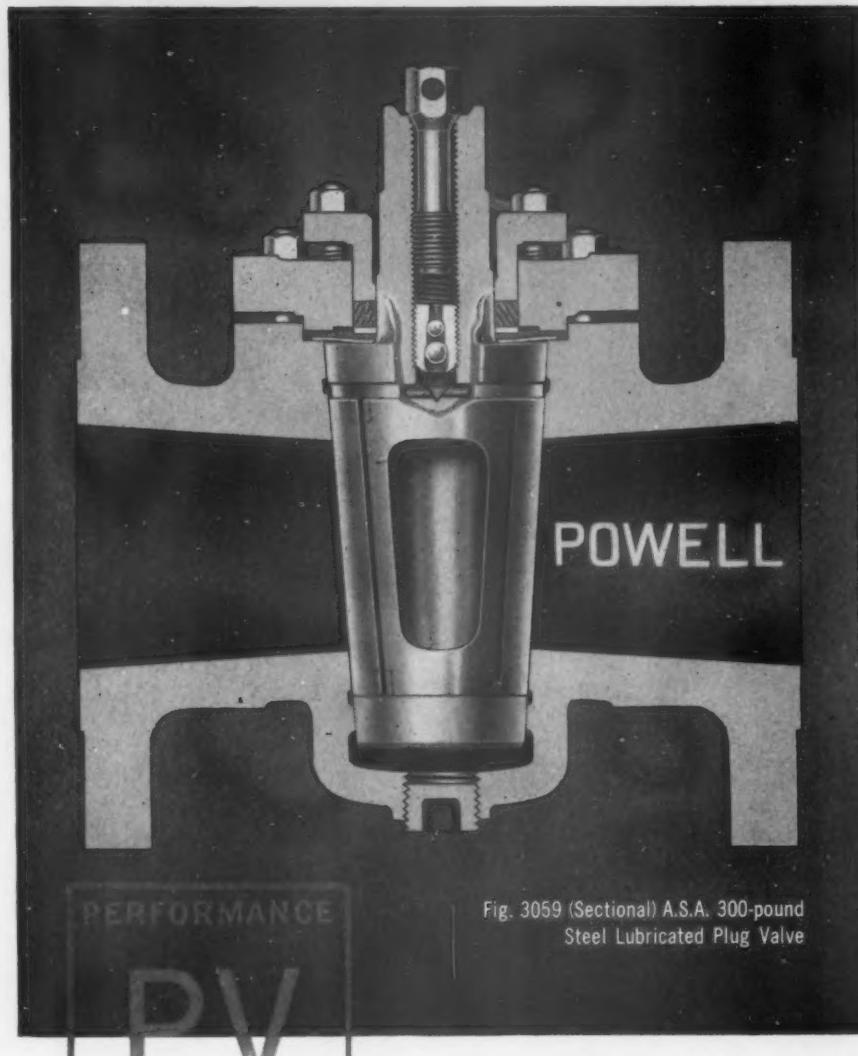


Fig. 3059 (Sectional) A.S.A. 300-pound Steel Lubricated Plug Valve



FIG. 1559G—150-pound Steel Lubricated Plug Valve. Gear operated



FIG. 2200—175-pound W.O.G. Semi-Steel Lubricated Plug Valve

Powell Lubricated Plug Valves maintain the 110-year tradition of quality and precision. Only the finest available materials are used. And painstaking quality control is rigidly enforced through each and every step of manufacture.

Valve users who want one source of supply for lubricated plug as well as all types of bronze, iron, steel and corrosion-resistant valves will want full details on Powell Lubricated Plug Valves.

For example, features include quick and positive operation—just a quarter-turn to open or close. Lubricant grooves surrounding each port provide a positive seal when the valve is closed. In an open position, seating surfaces are not exposed. Available in Steel and Semi-Steel through distributors in principal cities.

For full details, write for the new PV-4 Catalog on Powell Lubricated Plug Valves. Just fill out the coupon and mail. Of course there's no charge, no obligation.

The source of supply for all valve needs!

POWELL VALVES...110th YEAR

BRONZE, IRON, STEEL AND CORROSION RESISTANT VALVES.



348 Local General Electric Distributors Announce . . .

"OFF-THE-SHELF" DELIVERY OF G-E

NOW—348 G-E motor Distributors throughout the country have increased their stocks to give motor buyers faster delivery of G-E Tri-Clad* '55' motors. They now carry a complete line of Tri-Clad '55' motors—listed at right—to keep your down time at a minimum and to help cut your standby inventory. Dial your local G-E motor Distributor today for off-the-shelf delivery of industry's most preferred motor. His name and phone number are listed on the following pages.

867-1



MOTORS 5 TO 20 HP

**LISTED DISTRIBUTORS STOCK THESE MOTORS
AND OTHERS IN SMALLER AND LARGER SIZES**

HP	RPM	ENCLOSURE	HP	RPM	ENCLOSURE
5	1200	Driproof	10	1800	Enclosed
5	1200	Enclosed	15	1800	Driproof
7½	1800	Driproof	15	1800	Enclosed
7½	1800	Enclosed	20	1800	Driproof
10	1800	Driproof	20	1800	Enclosed

All motors are standard, 208-220/440-volt, 60-cycle,
3-phase, Type K, ball-bearing models.



FAST DELIVERY, DAY OR NIGHT—"Off-the-shelf" delivery of 5-20 hp Tri-Clad '55' motors saves you money by reducing downtime and cutting stand-by motor inventory.

CALL ME NOW!

ALABAMA

BIRMINGHAM
Argo & Co.
H. B. Williams, 57-4652
Matthews Elec. Supply Co., Inc.
Roy Norrell, AL 4-3192

MOBILE

Turner Supply Co.
V. B. Heath, HE 8-5581

ARIZONA

PHOENIX
Garrett Supply Co.
Frank Jordan, AL 8-5701
General Elec. Supply Co.
Gene Genon, Alpine 8-6721
Graybar Elec. Co., Inc.
Paul Bradford, Alpine 2-2371

ARKANSAS

CROSSETT
Tri-State Mill Supply Co.
J. P. Holland, FO 4-4136

FORDYCE

Tri-State Mill Supply Co.
J. B. Dooley, 301

LITTLE ROCK

General Elec. Supply Co.
G. M. Thompson, FR 5-5328
Graybar Electric Co.
Julian Smith, FR 5-1246
O'Bannon Bros.
W. F. Lewis, FR 2-2211

CALIFORNIA

BAKERSFIELD
Gough Industries, Inc.
Gene Duke, FA 5-5907

EMERYVILLE

General Elec. Supply Co.
Chris Misner, OL 3-4433

EUREKA

A. Brizard, Inc.
W. Nelson, HI 2-3761

FRESNO

Electric Motor Shop
3-1154

General Elec. Supply Co.
Bert Kelley, 8-4711

LOS ANGELES

California Wholesale Elec. Co.
John Cook, RA 3-7131
Garrett Supply Co.
Bob Dick, LU 8-7221
General Elec. Supply Co.
Paul R. DeBoux, Madison 5-7141
Gough Industries, Inc.
Charles Beaver, MA 6-2474

W. W. Grainger, Inc.
Charley Tamarkin, AN 3-6928

Graybar Elec. Co.
AN 3-7282

Shields, Harper & Co.
W. E. Kite, LO 8-4931

Smallcomb Elec. Co.
C. T. Truman, Richmond 7-0221

Ulrey & Gillett

Ed. Hetzer, RI 9-3051

MAYWOOD

Mitchell Elec. Equip. Co.
M. S. Mitchell, LU 3-4818

NORTH HOLLYWOOD

Dyer's Elec. Supply, Inc.
Frank Muhleman, PO 5-5434

OAKLAND

California Elec. Co.
Walter Vance, OL 5-6100

Shields, Harper & Co.
J. F. Mitchell, OL 3-9119

William Wurzbach Co.
Wm. Wurzbach, AN 1-0217

REDDING

Gerlinger Steel & Supply Co.
Frank Gerlinger, 2330

SACRAMENTO

Capital Machine & Welding Wks.
M. Horat, GI 3-2556

General Elec. Supply Co.
E. A. Reimers, GI 3-9001

SAN BERNARDINO

General Elec. Supply Co.
R. W. Morgan, 5135

SAN FRANCISCO

General Elec. Supply Co.
Frank King, UN 3-4000

Kuchel & Sievers Elec. Wks, Ltd.
F. O. Sievers, UN 1-8261

STOCKTON

General Elec. Supply Co.
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Guntert & Zimmerman Sales Div.,
Inc.

Ralph Warfield, HO 4-8712

UKIAH

Klamath Machine & Locomotive
Wks., H. Eitrem, HO 2-6578

VAN NUYS

Se-Cal Equip. & Supply Co.
Dick Sanford, ST 5-5431

COLORADO

DENVER

General Elec. Supply Co.
AM 6-0671

More G-E Distributors on next page . . .

GENERAL ELECTRIC

CALL THESE G-E DISTRIBUTORS FOR "OFF-THE-

(Continued from preceding page)

GRAND JUNCTION	Hawkins Electric Co. Charles Clark, HA 1-8070 Metropolitan Elec. Supply Co. F. Pedrigi, ST 2-4930	LEXINGTON	General Elec. Supply Co. Paul E. Hines, 2-1887 Graybar Elec. Co., Inc. L. W. Wester, 5-2020	MICHIGAN
PUEBLO	Illinoian Elec. Works Willis Harris, UP 5-4321	LOTHAIR	Mine Service Co. Phone 239	BATTLE CREEK
Johnson Elec. Co. R. S. Johnson, LI 3-1746	MT. VERNON	General Elec. Supply Co. Jack Mattingly, ME 7-3651	Mid-States Elec. Supply Inc. R. E. Hartmann, WO 3-6635	
CONNECTICUT	Dowzer Elec. Machinery Wks, Inc. Rex V. Woodward, 190	Graybar Elec. Co., Inc. C. J. Honadle, Melrose 7-5411	DETROIT	
BRIDGEPORT	PEORIA	Marine Elec. Company Melvin Theobald, Juniper 4-7175	Frank C. Teal Elec. Co., Victor L. Kochajda, LO 8-9092	
Elec. Maintenance Serv. Co., Inc. Ed Burr, ED 3-6163	ROCKFORD	LOUISIANA	General Electric Supply Co. O. C. Hall, TR 5-9400	
General Elec. Supply Co., T. E. Rasmussen, FO 8-1621	Elec. Apparatus Co. A. J. Rund, 5-4170	ALEXANDRIA	Graybar Elec. Co., Inc. TO 8-5550	
MERIDEN	General Elec. Supply Co. L. L. Lillie, 5-0551	BROWN ROBERTS	Miller-Seldon Elec. Co., T. E. Shreve, TY 4-3800	
Conn. Elec. Equip. Co. F. L. Raynor, BE 5-6383	SPRINGFIELD	General Elec. Supply Co. G. F. Schilling, 7-7586	Spaulding Elec. Co., A. P. Schaupner, WO 2-6200	
NEW BRITAIN	General Elec. Supply Co. John Dimond, 3-4509	BATON ROUGE	General Elec. Supply Co., D. A. Harper, Glendale 9-3243	
Spring & Buckley, Inc. W. A. Hayden, BA 9-2012	GRAYBAR	General Elec. Supply Co. G. F. Schilling, 7-7586	Graybar Elec. Co., Inc. GL 1-2701	
WEST HARTFORD	Crescent Elec. Supply Co. T. R. Huston, 2674	NEW ORLEANS	JACKSON	
Graybar Elec. Co., Inc. W. Treanor, AD 3-2631	INDIANA	General Elec. Supply Co. Harvey Wager, Galvez 5771	Elec. Wholesale Supply Co. P. Spry, 2-7123	
DELAWARE	EVANSVILLE	GRAYBAR	KALAMAZOO	
WILMINGTON	General Elec. Supply Co. T. J. Dornbusch, HA 5-2655	General Elec. Supply Co. John Palmer, Canal 6263	General Elec. Supply Co., G. E. Herrington, 3-2645	
Aircraft Elec. Supply Co. E. J. Read, Olympia 6-6651	GRAYBAR	New Orleans Armature John Berger, Canal 9566	LANSING	
General Elec. Supply Co., Cliff Clark, Wilmington 5-5561	FT. WAYNE	Standard Supply & Hardware Co. A. W. Herbert, CA 6641	Barker-Fowler Elec. Co., M. V. Green, IV 4-4406	
DISTRICT OF COLUMBIA	General Elec. Supply Co. F. Kentschler, HA-3243	SHREVEPORT	General Elec. Supply Co., J. H. Gallagher, Ivanhoe 7-5401	
WASHINGTON	Nussbaum Elec. Co. John Kinsey, AN-2252	General Elec. Supply Co. W. L. Smith, 4-1430	Graybar Elec. Co., Inc. M. Pratt, IV 7-5075	
General Elec. Supply Co. E. Czyz, HU 3-6800	FLORIDA	Graybar Electric Co., Inc. J. L. Roberson, 5-3271	MUSKEGON	
MIAMI	JACKSONVILLE		Fitzpatrick Electric Supply Co., 2-6621	
General Electric Supply Co. NE 5-1361	General Elec. Supply Co.		SAGINAW	
Gondas Corporation FR 4-1745	TURNER	General Elec. Supply Co. John Palmer, Canal 6263	General Elec. Supply Co., N. C. Stuart, 3-6474	
TAMPA	General Elec. Supply Co. O. K. McQuaile, EL 3-3661	NEW ORLEANS	MINNESOTA	
General Electric Supply Co., 2-1805	GENERAL	General Elec. Supply Co. Harvey Wager, Galvez 5771	DULUTH	
Raybro Elec. Supplies, Inc. W. D. Young, 2-1921	EVANSVILLE	GRAYBAR	Graybar Elec. Co., Inc. Arney Sabree, RA 2-6685	
GEORGIA	GENERAL	General Elec. Supply Co. John Palmer, Canal 6263	MINNEAPOLIS	
ATLANTA	GENERAL	New Orleans Armature John Berger, Canal 9566	Lakeland Engrg. Equip. Co. Bob Borg, FE 8-7531	
Cleveland Elec. Co. P. W. Pullin, JA 4-8422	GENERAL	Standard Supply & Hardware Co. A. W. Herbert, CA 6641	Sterling Elec. Co., E. H. McQuire, FE 2-4571	
General Elec. Supply Co., V. T. Baldwin, Jr., MU 8-3811	GENERAL	SHREVEPORT	ST. PAUL	
AUGUSTA	GENERAL	General Elec. Supply Co. W. L. Smith, 4-1430	General Elec. Supply Co., R. Woods, MI 5-2761	
Elec. Equip. Co. F. E. Cook, 2-6686	GENERAL	Graybar Electric Co., Inc. J. L. Roberson, 5-3271	MISSISSIPPI	
General Elec. Supply Co., J. W. Bond, 6-8422	GENERAL	General Elec. Supply Co. Harold French, Spruce 2-3721	JACKSON	
CAIRO	GENERAL	WESTBROOK	Power Elec. Co., J. P. Hutchinson, 5-8361	
Harrison & Ellis Co. E. B. Harrison, 2-4482	GENERAL	Stultz Elec. Works Robert Webb, UL 4-2501	MISSOURI	
DALTON	GENERAL	MARYLAND	JOPLIN	
Dalton Supply Co. Alfred Bailey, 1564	GENERAL	BALTIMORE	General Elec. Supply Co., Jim Williams, MA 4-5622	
ROME	GENERAL	General Elec. Supply Co. George Smore, LE 9-3565	KANSAS CITY	
Bottey Machinery Co. G. B. Burkhalter, 2-2421	GENERAL	GRAYBAR	General Elec. Supply Co., Harold Burrows, HA 1-7447	
SAVANNAH	GENERAL	GENERAL	ST. LOUIS	
General Elec. Supply Co. Dick Peters, 4-2231	GENERAL	General Elec. Supply Co. A. L. Daly, 6216	General Elec. Supply Co., Walter Euler, JE 1-3000	
VALDOSTA	GENERAL	HAGERSTOWN	Graybar Elec. Co., Inc., Wayne Aceto, JE 1-4700	
Valdosta Armature Wks. A. L. McMillan, 1732	GENERAL	General Elec. Supply Co. Hagerstown Equip. Co., Allen E. Ocker, 3813	MONTANA	
IDAHO	GENERAL	MASSACHUSETTS	BILLINGS	
BOISE	GENERAL	BOSTON	General Elec. Supply Co., D. L. Beck, 9-4550	
General Elec. Supply Co. J. Lee, 4-5541	GENERAL	GRAYBAR	GRAYBAR	
Graybar Elec. Co., Inc. W. C. Coen, 2-4501	GENERAL	GENERAL	ELEC. CO., INC.	
PARMA	GENERAL	GENERAL	Dick Murtha, 3233	
Transmission Products, Div of Parma Water Lifter Co., Lloyd L. Nelson, 2-2611	GENERAL	GENERAL	NEBRASKA	
ILLINOIS	GENERAL	GENERAL	OMAHA	
CHICAGO	GENERAL	GENERAL	General Elec. Supply Co., Tom Ridgeway, Jackson 0456	
A. A. Electric Supply Co. Ted Dudczyk, LA 1-6500	GENERAL	GENERAL	Graybar Elec. Co., Inc., Fred B. Hanson, Webster 7676	
Cesco Equip. Co., H. J. Bailey, CH 3-8067	GENERAL	GENERAL	Schneider Elec. & Equip. Co., W. J. Andersen, Webster 5550	
Complete Elec. Supply Co. Joe T. Kowalski, WA 8-8022	GENERAL	GENERAL	NEVADA	
Efengene Elec. Supply Co., Sy Harris, SE 8-3500	GENERAL	GENERAL	Linbeck Elec. Sales Co., W. R. Reynolds, Reno 3-3729	
Excel Elec. Service Co., Michael J. Mulliner, VI 7-7220	GENERAL	GENERAL	NEW HAMPSHIRE	
General Elec. Supply Co., E. Bonk, WA 2-5656	GENERAL	GENERAL	General Elec. Supply Co., Joe Charron, NA 5-5418	
W. W. Grainger, Inc., Frank Hock, Seeley 8-3844	GENERAL	GENERAL	MANCHESTER	
Graybar Elec. Co., Inc. P. J. Mayer, CA 6-4100	GENERAL	GENERAL	General Elec. Supply Co., Joe Charron, NA 5-5418	



GENERAL  ELECTRIC

"SHELF" DELIVERY OF G-E MOTORS 5 TO 20 HP

NEW JERSEY

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National Elec. Supply Co.
Meyer Borstein, Emerson 5-4330
NEWARK
General Electrical Equip. Co., Inc.
George Sherman, MI 2-7420
General Elec. Supply Co.
Bill Lutton, BI 2-1600
Graybar Elec. Co., Inc.
H. Pearce, MA 2-5100
NEW BRUNSWICK
A. Bishop Elec. Motor Exchange
Arnold Bishop, KI 5-6446
PATERSON
General Elec. Supply Co.
G. Weindling, LA 5-5100
Reliable Elec. Motor Repair Co.
Harold Muller, AR 4-7756
Watson-Flagg Sales Corp.
E. M. Koetsier, LA 5-2324

TRENTON

General Elec. Supply Co.
Ray Jamieson, Owen 5-3453
Thropp Elec. Sales Corp.
C. W. Archinal, JU 7-1441

NEW MEXICO

ALBUQUERQUE
A. E. Boyd Equipment Co.
4-6016
Electric Service, Inc.
2-9447
General Elec. Supply Corp.
2-5246

NEW YORK

ALBANY
Graybar Electric Co., Inc.
5-1563
Havens Electric Co., Inc.
4-1201

BUFFALO

General Electric Supply Co.
R. H. Sheldon, EL-5100
Graybar Electric Co., Inc.
Lou Pfeffer, WA-3700

BROOKLYN

Apparatus Distributor, Inc.
Len Keller, UL 2-4000

ELMIRA

Le Valley McLeod, Inc.
John F. Decker, 6163

GLENS FALLS

Glen Falls Electric Supply Co., Inc.
2-5868

JAMAICA

Central Queens Elec. Supply Corp.
Charles Weltner, RE 9-2020

LONG ISLAND CITY

Graybar Elec. Co., Inc.
L. H. Kort, EX 2-2000
Motors & Armatures, Inc.
Sid Davis, EX 3-3523

NEW YORK

Electric Motors Corp.
M. Goldberg, CA 6-665
General Elec. Supply Co.
Jim Boyland, AL 5-3300
W. W. Grainger, Inc.
E. Heckler, CA 6-3810
Hudson Elec. Sales Co., Inc.
D. Hark, WO 2-3041

POUGHKEEPSIE

Electra Supply Co., Inc.
Howard K. Phillips, 8000

ROCHESTER

Electric Equip. Co. Div.
Norry Elec. Company
GL-6070
General Elec. Supply Co.
Dan Nolan, HA 7500
T. H. Green Electric Co.
HA-9840

SYRACUSE

M. H. Salmon Elec. Co., Inc.
R. S. Bowser, 73-3323

TROY

Tri-State Elec. Motors, Inc.
D. W. Fitzpatrick, Ashley 2-4250

UTICA

Langdon & Hughes Elec. Co., Inc.
C. A. Dyer, 4-3154
Mather, Evans & Diehl Co., Inc.
Bill Diehl, 4-6165

NORTH CAROLINA

ASHEVILLE
General Elec. Supply Co.
A. L. Henderson, 2-4481

CHARLOTTE

Armature Winding Co.
J. E. Jenkins, ED 3-2158
General Elec. Supply Co.
J. B. Hurt, Jr., FI 5-7321
Mill-Power Supply Co.
B. M. Foster, Franklin 5-5761

FAYETTEVILLE

General Elec. Supply Co.
T. C. Merritt, 2-5143

GREENSBORO

General Elec. Supply Co.
John F. Alexander, 3-8207

GREENVILLE

General Elec. Supply Co.
Bob Prevatte, 5104

LAURINBURG

Electrical Equip. Co.
H. A. Gill, 1196

RALEIGH

Electrical Equipment Co.
W. T. Becton, TE 2-2039

GENERAL ELECTRIC

General Elec. Supply Co.
C. T. Parks, TE 3-4691

WINSTON-SALEM

Graybar Elec. Co., Inc.

OHIO

AKRON

General Elec. Supply Co.
Joe Wagner, FR 6-8195

GRAYBAR

Graybar Electric Co., Inc.

CANTON

General Elec. Supply Co.

CINCINNATI

General Elec. Supply Co.

GA 1-1750

GRAYBAR

Graybar Electric Co., Inc.

MA 1-0600

CLEVELAND

Elliott Electric Co.

TO 1-2454

GRAYBAR

Graybar Electric Co., Inc.

HE 2-2500

STRONG

Strong, Carlisle & Hammond Co.

Jim Simmons, TO 1-8800

COLUMBUS

General Elec. Supply Co.

MI 0781

GRAYBAR

Graybar Elec. Co., Inc.

MI 5665

HAMILTON

The Wente Elec. Co.

TW 4-8128

PORTSMOUTH

General Elec. Supply Co.

3-2341

TOLEDO

General Elec. Supply Co.

L. J. Cole, Cherry 4-8661

GRAYBAR

Graybar Elec. Co., Inc.

AI Katafiasz, EX-1641

YOUNGSTOWN

Economy Electric

E. Cutler, Jr., Riverside 4-4461

GENERAL ELECTRIC

General Electric Supply Co.

C. B. Monroe, Riverside 6-6511

GRAYBAR

Graybar Elec. Co., Inc.

George Rowlands, Riverside 4-0124

OKLAHOMA CITY

General Electric Supply Co.

I. V. Owen Co.

Ronald Owen, 72

TULSA

General Electric Supply Co.

F. G. Ross, DI 3-6121

GRAYBAR

Graybar Elec. Co.

Ray Downing, MA 6-2121

WEWOKA

Okl. Ind. Elec. Supply Co.

Jim Embach, 287

OREGON

COOS BAY

Marshfield Elec. Co.

U. E. Richter, Congress 7-6319

GENERAL ELECTRIC

EUGENE

American Steel & Supply Co.
R. E. Yates, Diamond 5-0373

KLAMATH FALLS

Klamath Mach. Co.

H. Ellis, 2-2588

MEDFORD

American Steel & Supply, Inc.
R. S. Rix, 2-7181

GENERAL ELECTRIC

General Elec. Supply Co.

P. Jorgenson, 3-4519

PORTLAND

Eoff Electric Co.

CA 2-9411

GENERAL ELECTRIC

General Elec. Supply Co.

CA 7-0651

GRAYBAR

Graybar Elec. Co., Inc.

CA 7-6641

HELT & O'DONNELL

CA 8-0753

ROSEBURG

Industrial Elec. Service Co.

L. Hobart, OR 3-6658

PENNSYLVANIA

ALLENTOWN

Allen Elec. Co.

L. Brown, HF 5-9515

GENERAL ELECTRIC

General Elec. Supply Co.

Bob Harte, Hemlock 3-5206

BRADFORD

Bovard & Co.

L. V. Brown, 7141

DREXEL HILL

General Elec. Supply Co.

F. Robinson, CL 9-6440

ERIE

General Elec. Supply Co.

Al Weirich, 2-1477

INDIANA

National Mines Service Co.

5-5655

JOHNSTOWN

General Elec. Supply Co.

W. C. Hill, 7-5101

LANCASTER

Raub Supply Co.

G. E. Brown, 7-6221

PHILADELPHIA

A. J. Lacourse

Eugene Batdorf, MA 7-1895

GENERAL ELECTRIC

General Elec. Supply Co.

E. C. Durkin, GA 6-8800

GRAYBAR

Graybar Elec. Co., Inc.

P. D. Chick, WA 2-5405

Jos. T. Fewkes & Co.

Ray Gillin, WA 2-2241

PITTSBURGH

General Elec. Supply Co.

D. J. Finn, Fairfax 2-1530

GRAYBAR

Graybar Elec. Co., Inc.

Mark Glasgow, FA 2-4100

READING

General Elec. Supply Co.

Bill Rodgers, Reading 4-2169

SCRANTON

General Elec. Supply Co.

H. McDowell, Diamond 4-8563

SCRANTON ELEC. CONSTRUCTION CO.

A. W. Winter, DI 2-3152

SHARPSBURG

Globe Elec. Repair Co.

Steve Marshall, Sterling 1-2677

WESTCHESTER

Westchester Elec. Supply Co.

R. McLaughlin, WE 4722

WILLIAMSPORT

Lowry Electric Co., Inc.

P. M. Griffin, 2-7841

More G-E Distributors on Next Page...

GENERAL  **ELECTRIC**

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WILKES-BARRE

General Elec. Supply Co.
H. G. Holland, Valley 2-5106

RHODE ISLAND

PROVIDENCE

General Elec. Supply Co.
W. L. Higgins, GA 1-6523

J & H Electric Co.

Calvin Wilcox, GA 1-7840

PAWTUCKET

N. E. Elec. Supply Co.

Pawtucket 5-7400

SOUTH CAROLINA

ANDERSON

Woodward-Stephens Co., Inc.

D. Fred Stephens, Canal 5-2501

GREENVILLE

J. W. Vaughan Co.

Newell Eastland, 2-2421

SUMTER

Sumter Machinery Co.

B. A. Siddall, Spruce 3-7321

SOUTH DAKOTA

ABERDEEN

McLaughlin Elec. Supply House

Don Lehr, 4911

RAPID CITY

Crescent Elec. Supply Co.

T. R. Hersey, FI 2-7913

TENNESSEE

CHATTANOOGA

Elec. Motor Sales & Supply Co.

Frank N. Griscom, Jr., 9-7361

Graybar Elec. Co., Inc.

Max Evans, 4-3351

COLUMBIA</h

"OFF-THE-SHELF" DELIVERY OF G-E MOTORS 5 TO 20 HP

(Continued from preceding page)

MIDLAND

I. W. Hynd Co.,
Wesley Adams, MU 4-5501

SAN ANTONIO

San Antonio Machine & Supply Co.
S. V. Patrick, CA 5-1651
General Elec. Supply Co.,
J. A. Russell, CA 7-1261

TYLER

General Elec. Supply Co.,
R. A. Hamilton, 2-1674

WACO

General Elec. Supply Co.,
Henry L. Fleischhauer, 2-1611

WICHITA FALLS

Elec. Motor Co.,
Eugene Phillips, 7-7841

UTAH

SALT LAKE CITY
General Elec. Supply Co.,
EM 3-3911
Graybar Elec. Co. Inc.,
Elgin 9-8771
Refrigeration Distributors Corp.,
DA 2-5886

VIRGINIA

RICHMOND
Electrical Equip. Co.,
T. L. Campbell, 7-2647
General Elec. Supply Co.,
L. V. French, 6-4941

NORFOLK

General Elec. Supply Co.,
W. E. Sheppard, MA 2-7183

ROANOKE

General Elec. Supply Co.,
J. W. Hughes, 3-1564
Graves-Humphreys Hdw. Co., Inc.,
R. W. Eldridge, 3-8011
Graybar Elec. Co., Inc.,
W. C. John, 3-3615

WASHINGTON

SEATTLE
General Elec. Supply Co.,
H. J. Halvorsen, SE 6400
Graybar Elec. Co., Inc.,
J. R. Savage, MU-0123
Shields, Harper & Co.,
S. Klinefelter, EL-2674

SPOKANE

General Elec. Supply Co.,
L. F. Stephens, KE 0431
Graybar Elec. Co., Inc.,
W. C. Sanders, EM 6611

TACOMA

General Elec. Supply Co.,
Dean Elton, BR 8454

WEST VIRGINIA

BLUEFIELD
Bluefield Supply Co.,
W. E. McDougle, DA 5-6131

CHARLESTON

Virginian Electric, Inc.,
W. H. Knight, 6-0631

HUNTINGTON

Virginian Electric, Inc.,
L. E. Pauley, 2-8396

LOGAN

Logan Hardware & Supply Co.,
J. P. Swindell, 710

WHEELING

General Elec. Supply Co.,
R. L. Nickerson, 2555

WISCONSIN

APPLETON
General Elec. Supply Co.,
W. Van Weele, RE 4-7155

GREEN BAY

Graybar Elec. Co., Inc.,
K. C. Lynch, HE 7-3284
Beemster Elec. Co.,
H. N. Beemster, HE 7-3238

MADISON

Crescent Elec. Supply Co.,
C. L. Gilbert, AL 6-5441
Elec. Motor Service
C. Sutherland, AL 6-6724

MILWAUKEE

General Elec. Supply Co.,
L. E. (Bud) Tapp, Broadway 6-7730
Graybar Elec. Co., Inc.,
R. R. Schobert, BR 6-8400

WAUSAU

Snapp Elec. Supply Co.,
R. C. Runquist, 2-1031

WYOMING

CASPER
General Elec. Supply Co.,
K. R. Brown, 2-7333

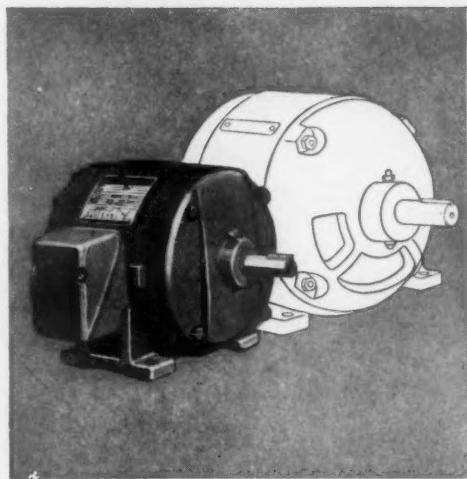
CHEYENNE

Frontier Elec. Supply Co.,
2-6453

TERRITORY OF HAWAII

HONOLULU
American Factors, Ltd.,
Ken Asari, 5-1511

G-E Tri-Clad '55' Motors Give You Value, PLUS!



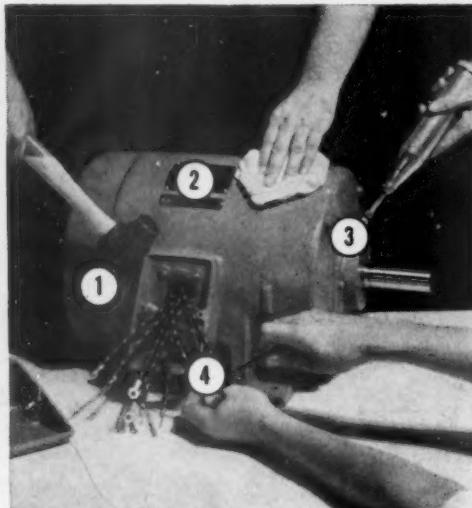
MORE COMPACT—Excess bulk has been trimmed and all waste space eliminated from the Tri-Clad '55' motor. For you, this reduces shipping and installation costs.



LONGER LIFE—New miracle materials used in the Tri-Clad '55' motor insulation system make it shed water like a duck's back and virtually eliminate insulation failures.



GREATER PROTECTION—With fewer openings in the Tri-Clad '55' frame (left), motor is protected against dirt, dust, and moisture far better than old-style motors.



EASIER MAINTENANCE—(1) Knock-off lugs, (2) stainless steel nameplate, (3) on-the-job regreasing, and (4) permanently numbered leads assure quick, easy maintenance.

*Registered trademark of General Electric Co.

For more information on the new, fast-service plan—and "special"

G-E Tri-Clad motors—call your local G-E motor Distributor.

MEDIUM INDUCTION MOTOR DEPARTMENT
GENERAL ELECTRIC COMPANY, SCHENECTADY 5, N. Y.

GENERAL  ELECTRIC

For More Information Circle No. 265 on Inquiry Card—Page 17

PURCHASING



Seeking, and finding, ways to
improve your products
by improving ours

It all starts with you . . . you and other users of metal who want new or better products.

A hot-dip coater, for example, wants a faster melting, tighter bonding alloy. An assembler of small parts asks for a quicker acting cored solder. A die caster needs higher strength or better finishing surfaces. And so it goes.

The men who want to cut cost, improve quality, reduce rejects, increase profits, put it up to National Lead field men . . . and National Lead Research goes after the answers.

Finds them, too . . . in case after case, industry after industry. Leading companies in many fields turn naturally to National Lead for help whenever their

problem involves lead, tin, zinc, and their alloys; solders, fluxes, babbitts; grid or type metals; lead, tin or zinc coating or casting alloys.

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**"We have to stay sharp
to do our job**

Sharpening and grinding allows for no mistakes . . . it's a precision job. We made no mistake in choosing Halsey Taylor Coolers . . . now we keep sharp with plenty of cool water when we need it."



Wherever they're installed, Halsey Taylor Coolers prove a boon to any plant. They not only assure health-safe drinking water, but they provide a welcome freedom from servicing annoyances.

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HALSEY® TAYLOR

Industry's Favorite Coolers

Cooler Shown:
Vitreous China Top



F-64

For More Information Circle No. 267 on Inquiry Card—Page 17

Special Washers

ANY METAL • ANY SIZE
ANY QUANTITY

Over 15,000 Sets
of tools at
your disposal

THE Master Products co.

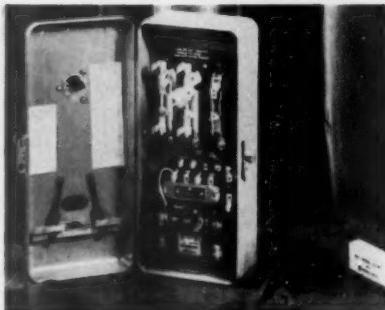
6400 PARK AVENUE • Diamond 1-1740 • CLEVELAND 5, OHIO

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new products

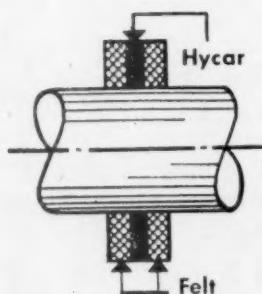
Kits to Easily Modify Starters



Built for across-the-line, non-reversing combination, or reversing starters, General Electric, Schenectady 5, N.Y., is marketing six kits that will modify these starters in a matter of minutes, using only a screwdriver. They may be modified to fit any of six special conditions by installing a pushbutton or selector switch in the starter cover; changing fuse clips on disconnect switch; changing the coil; adding a third overload relay; adding an interlock kit. These modifications are for starters in open or in NEMA type 1 enclosures and for NEMA sizes 0 through 4.

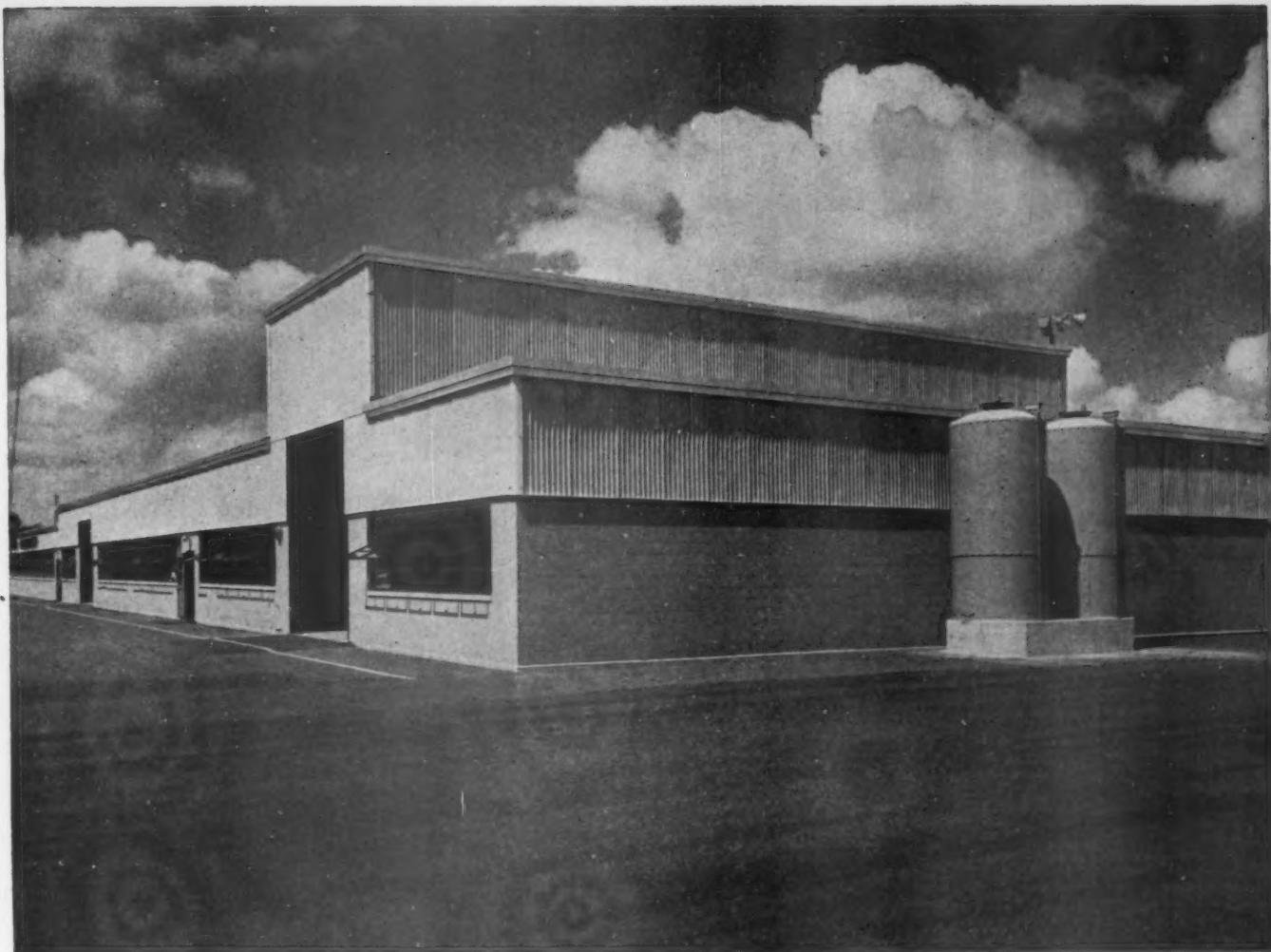
Circle No. 85 on Inquiry Card—Page 17

Oil and Bearing Seal Fits When No Oil Head Exists



The Felters Co., 210 South St., Boston 11, Mass., has developed a special type of oil and bearing seal, trade named DuFelt, for sealing of light oils when no head

(Please turn to page 196)



K&M Corrugated Asbestos Sheets, used as siding on the Operations Center of a southeastern utility company, complement the clean, modern lines of the building. These sheets are also used on a pitched roof, not shown in the photograph. Engineering and supervision of construction: Stone and Webster Engineering Corporation. Applicator: Whatley Roofing and Sheet Metal Works, Tampa, Florida.

Attractive, weather-proof, fire-proof, maintenance-free K&M Corrugated Asbestos

Building a new plant? Modernizing your present one? In either case, you'll gain important cost and other advantages with K&M Corrugated Asbestos-Cement Sheets. They cannot burn, can't rot or corrode—withstand the ravages of time and weather year after year. Because K&M Corrugated Asbestos-Cement Sheets rarely require maintenance, *never*

need protective painting, their upkeep is held to the barest minimum.

Easy to apply. These corrugated sheets offer big savings in application costs. They go on quickly, are easily sawed, drilled, and fitted on the job.

Write for complete details on K&M Corrugated Asbestos Roofing and Siding.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA



For More Information Circle No. 269 on Inquiry Card—Page 17

New Oakite

RINSITE

works wonders with rinse-water!

- prevents water spotting
- retards rust

Add an amazingly small amount of Oakite Rinsite to your rinse-water—*approximately 1/10 oz. per gallon*—and your final rinse works wonders on plated and polished work.

Oakite Rinsite protects metal brilliance in two ways:

- 1 It insures complete, uniform draining for spot-free dry down.
- 2 It leaves an invisible film to protect certain types of plating temporarily against rust and discoloration.

On tumbled work, burnished finish is maintained when rinsed with Oakite Rinsite. Barrel-finished steel parts come out of the final rinse with full lustre and shielded temporarily against rust.

For more details, call your local Oakite Technical Service Representative, or write for free copy of Folder F9822 to Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.



Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada

For More Information Circle No. 270 on Inquiry Card—Page 17

new products

(Continued from page 194)

of oil exists. The product from which the seal is made is a special lamination of hycar and felt. It is compressible for tight fit, grease-absorbent for low friction and consists of a hard, tough fibrous structure for long life. The seal is satisfactory when used under acid condition of pH down to 2.5 and will withstand mild alkaline solution at normal temperatures. The material can be used in any of the common types of seal construction.

Circle No. 86 on Inquiry Card—Page 17

Paper Towels Fit Standard Dispensers



A singlefold and a multifold paper towel, which fit all three of the towel dispensers commonly found in washrooms, keep their strength when wet and will stretch to fit the contours of the hands. The singlefold towel measures 10½" x 10½" and the multifold towel 9-3/8" x 9-1/2". They are both completely odorless and will not lint when used on the toughest of beards. They absorb water quickly without turning to mush in the hands. This absorbency, according to the manufacturer, Scott Paper Co., Chester, Pa., is of interest to purchasing agents because it results in lower towel consumption and lowers over-all costs.

Circle No. 87 on Inquiry Card—Page 17

For More Information Circle No. 271 on Inquiry Card—Page 17→

PURCHASING



TUBE-TURN
TRADE MARKS

Remember — the trade marks "tt"
and "TUBE-TURN" are applicable only
to products of TUBE TURNS.

You get
extra strength
with

The Leading Brand

TUBE-TURN* WELDING TEES are drawn from seamless tubing to a barrel shape. This, and other design features produce high strength — averaging over 25% more than required by applicable standards.

Specify TUBE-TURN Welding Fittings and Flanges for extra values: superior products, the exact fitting or flange you need from our complete line, outstanding engineering service. Call your nearby Tube Turns' Distributor. He is at your service!

The Leading Manufacturer of Welding Fittings and Flanges

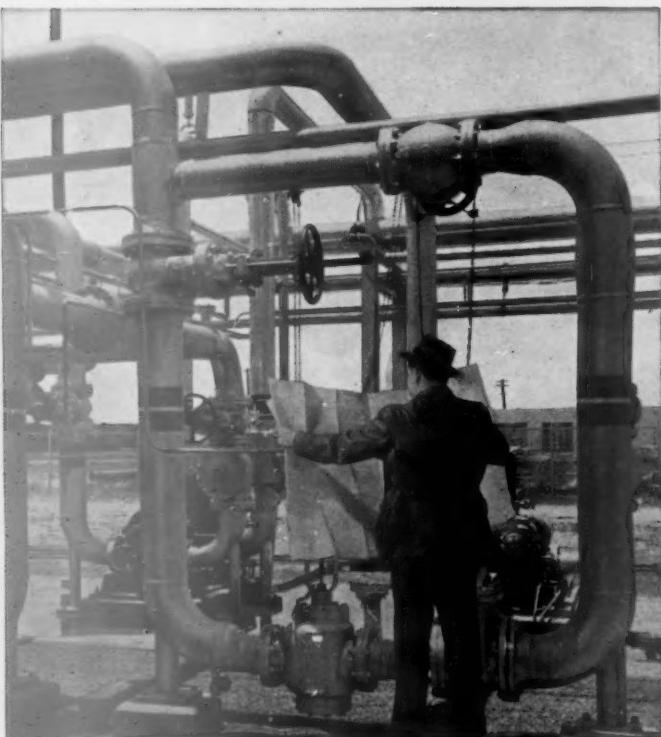
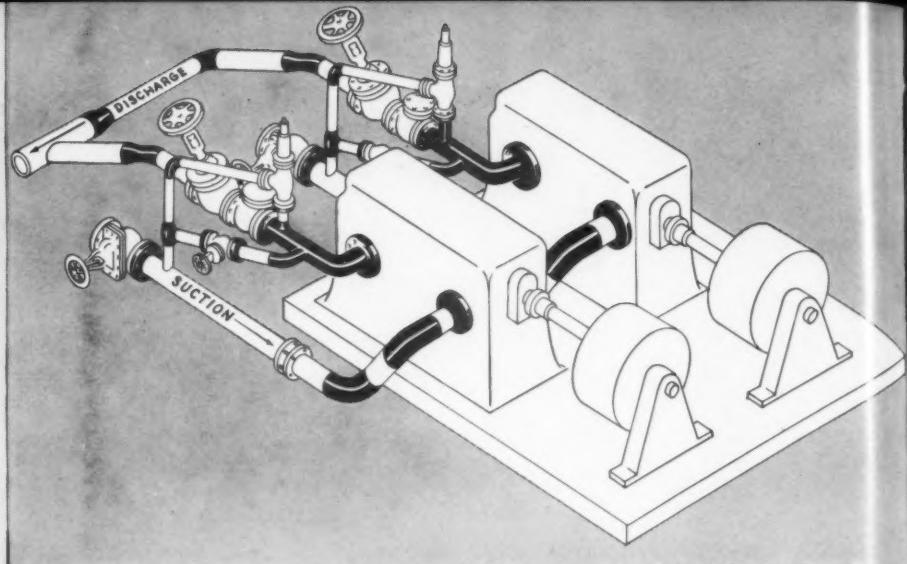
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A DIVISION OF NATIONAL CYLINDER GAS COMPANY KENTUCKY

DISTRICT OFFICES: New York • Philadelphia • Cleveland • Toledo • Chicago • Denver • Los Angeles
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EXTRA VALUES

**Speed up
your piping jobs
with
TUBE TURNS'
SERVICE**



COMPLETE LINE SERVICE—You can make sure of getting the right fitting for each job when you specify "TUBE-TURN". This is the world's most complete line of welding fittings and flanges, including more than 4000 items, in all piping materials, schedules, and sizes.

Technical data service

Tube Turns is recognized as a leading source of authoritative information on piping design. For booklet on "Allowable Working Pressures", fill out and send the coupon now.



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224 East Broadway, Louisville 1, Kentucky

Please send free copy of "Allowable Working Pressures"

Company Name _____

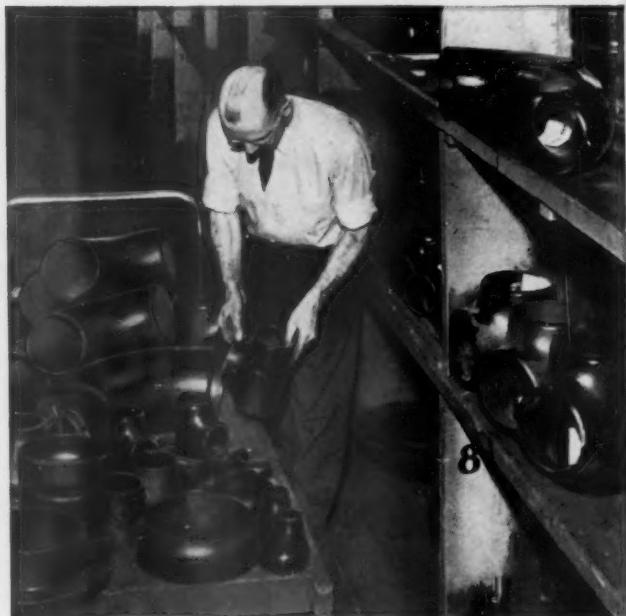
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ENGINEERING SERVICE—Tube Turns' Engineering Service can help you on your piping projects. For example: Diagram above shows an application where TUBE-TURN® Welding Fittings and Flanges simplified the design and erection of pump piping. They save time, save space, and make the piping permanently leakproof and reliable. Ask your Tube Turns' Distributor to give you the pump piping recommendations of Engineering Service.



AVAILABILITY—Your nearby Tube Turns' Distributor carries local stocks for fast delivery. Call him for good service in good connections.



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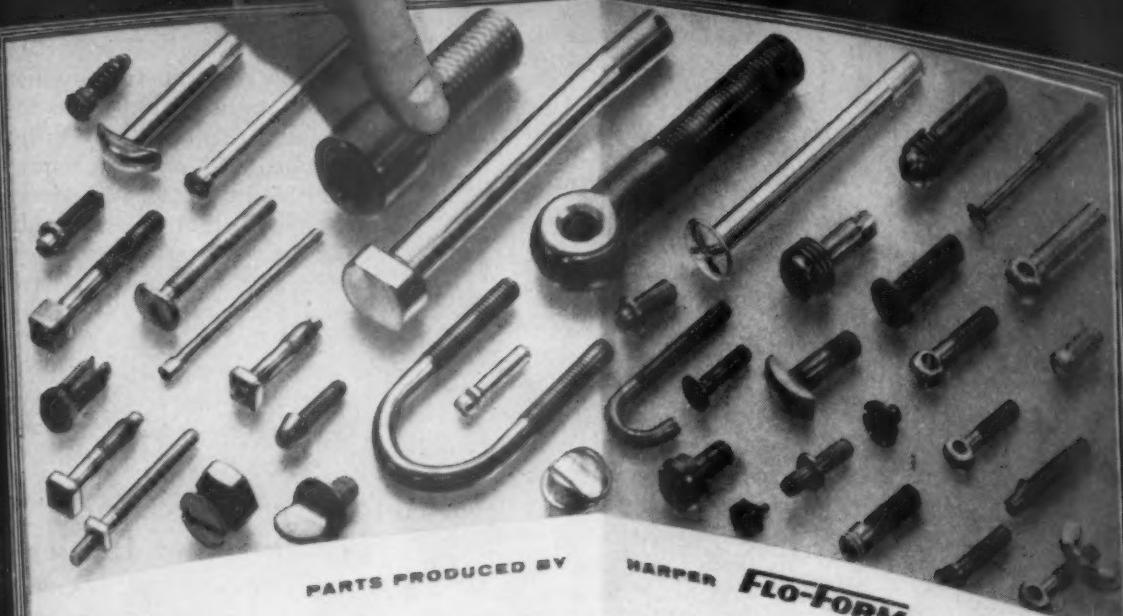
New York	San Francisco
Philadelphia	Seattle
Cleveland	Atlanta
Chicago	Tulsa
Denver	Houston
Los Angeles	Dallas
Midland, Texas	

* "TT" and "TUBE-TURN" Reg. U.S. Pat. Off.

TUBE TURNS
A DIVISION OF NATIONAL CYLINDER GAS COMPANY
LOUISVILLE 1, KENTUCKY

Parts Like These...at Big Savings

By FLO-FORM



PARTS PRODUCED BY

HARPER FLO-FORM

Many of the parts shown above are produced by cold forming. Others are produced by hot forging. All have three important advantages over standard parts. They are of non-ferrous metal or stainless steel; they have designed to serve a particular purpose; they themselves represent a contribution by Harper engineers in the

design for more efficient production, and above all, they cost less for user's better part of an actual saving in cost.

There is a limit to the size of special parts that can be produced by cold forming. Anything above 1/2" x 5' of stainless steel is beyond the range of efficient cold forming.

However, it is possible to produce much larger parts by hot forging and on Harper you will find the latest in modern cold forming equipment to meet the needs of these operations. Please consult engineers relative the importance of working with us to design special parts to meet your particular requirements.

How can FLO-FORM* parts save you money? Simple! By forming the part, hot or cold, out of bar or wire with practically no waste of costly metal.

Harper engineers have been specializing in parts of corrosion-resistant metals since the company was founded. With this background of experience they have been able to show manufacturers new tricks in producing parts of non-ferrous metal and stainless steel that have resulted in improved quality...reduced costs.

THE H. M. HARPER COMPANY • 8222 LEHIGH AVENUE • MORTON GROVE, ILL.

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Everlasting Fastenings

For More Information Circle No. 272 on Inquiry Card—Page 17



Ask these questions, too, when you judge a fluorescent lamp...



Is your investment protected?

Check Westinghouse Fluorescent Lamps against any other brands you are now using. Check them for maintained brightness, long life, uniform appearance. If you are not entirely satisfied on all counts, your full purchase price will be refunded.



Is it built with tailored glass?

Quality of glass in a fluorescent lamp directly affects lamp performance. Westinghouse makes all of its own fluorescent lamp glass, tailoring it from silica to finished tubing specifically for fluorescent service.



Is it the correct type, size and color for the lighting job to be done?

In the Westinghouse fluorescent family of 290 different lamps—including Slimline and Rapid Start—there's a type and size precisely right for every office, plant and merchandising application. Colors include seven different shades of "white" alone.



For the full story on how to get more for your money in fluorescent light, contact your Westinghouse Lamp Representative.

**WATCH
WESTINGHOUSE**

WHERE BIG THINGS
ARE HAPPENING FOR YOU!

new products

Extruded Heavy Coated Bronze Welding Rods

Designed for braze welding and welding malleable iron, cast iron, brass and bronze with dirty, oily or greasy surfaces three types of extruded, heavy coated bronze oxyacetylene welding rods are on the market. The No. 20 type bronze rod is for general braze welding and welding; the No. 22 manganese bronze rod is for high strength welds and the No. 27 is a low fuming bronze rod. The rods are made in four diameters: $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ " and $\frac{3}{32}$ ". They are a product of Air Reduction Sales Co., Inc., 150 E. 42nd St., New York 17, N.Y.

Circle No. 88 on Inquiry Card—Page 17

Plastic-Coated Cold-Reduced Steel Sheets

Combining steel structural strength with rich decorative effects of vinyl plastic, a new product is in experimental production at U.S. Steel's Irvin Works in Dravosburg, near Pittsburgh, Pa. Cold-reduced steel sheets are coated with liquid plastic to produce an appealing, tough surfaced sheet of great beauty and durability. They promise new decorative effects and long service in such equipment as refrigerators, wall panels, automotive bodies and trim, and stove and heater parts, etc. The coating of the new material has excellent abrasion-resistance properties and is inert to many chemicals.

Circle No. 89 on Inquiry Card—Page 17

**FOR MORE INFORMATION
ON PRODUCTS IN
THIS ISSUE
USE INQUIRY CARD—PAGE 17**

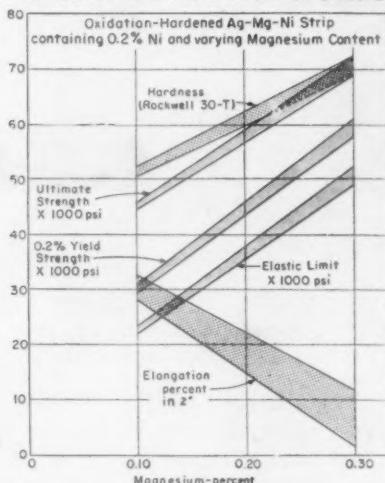
Teflon Hose With Detachable Fittings

Teflon hose, made from tetrafluoroethylene which is inert to most chemical action, has been made available by Aeroquip Corp., Jackson, Mich., with detachable, reusable fittings. It is particularly suitable for industrial applications where unusual exposure to wide temperature ranges and injurious chemical action is encountered, such as in the atomic energy and chemical industries. Additional general applications include steam lines and other installations with fluid temperatures from —100 F to 500 F. The fitting for the hose can be attached and detached with hand tools.

Circle No. 90 on Inquiry Card—Page 17

Silver Alloy Works Soft, Oxidation-Hardens

PHYSICAL PROPERTIES AT ROOM TEMPERATURE



A silver-magnesium-nickel composition alloy offers an unusual combination of electrical and mechanical properties. It is easily worked while soft and then is irretrievably hardened by heating in air. Once hardened, the alloy is highly resistant to softening, has a low creep and, for practical purposes, does not anneal at elevated temperatures. In the as-received condition, the alloy is soft like fine silver or copper and parts can be formed by stamping, drawing, bending, spinning, etc. The alloy is available from Handy & Harman, 82 Fulton St., New York 38, N.Y.

Circle No. 91 on Inquiry Card—Page 17
PURCHASING

how to judge a fluorescent lamp . . . point no.



9



ask about **ELECTRODE
QUALITY**

Better electrodes in a fluorescent lamp mean *longer lamp life*. That's why Westinghouse cuts no corners in its electrode manufacture. All Westinghouse electrode coil wire, for example, is drawn through diamond dies. Some of it has to be drawn so fine that a single pound will extend from New York to Pittsburgh. Thanks to constant development of new and better ways to make fluorescent lamp electrodes, Westinghouse has *tripled* the life of its fluorescent lamps since 1948.

WATCH WESTINGHOUSE
WHERE BIG THINGS ARE HAPPENING FOR YOU!

For More Information Circle No. 273 on Inquiry Card—Page 17

new products

**Rate Your Trucks
For QDC* In 12 Seconds!**

Do they start and roll easily? Yes No

 Are parts quickly, easily replaced? Yes No

 Do they withstand years of abuse? Yes No

 Are they designed for YOUR job? Yes No

Just one "no" in this check chart for *Quality Design and Construction means you're not getting the economies offered by Nutting trucks. Dependability, minimum maintenance and ease of operation are *always* the result of QDC. And QDC is the result of 65 years experience in the manufacture of floor trucks!

Nutting TRUCK & CASTER COMPANY
 1271 Division Street, Faribault, Minnesota
 Since 1891
 Export Sales Rep.: Schael International,
 Inc., 4261 N. Lincoln Ave., Chicago 18, Ill.

For all the facts call your Nutting representative . . . he's listed under "Trucks" or "Casters" in the yellow pages. Or write direct for the Junior Catalog.

For More Information Circle No. 274 on Inquiry Card—Page 17

PLYMOUTH
Rubber
Bands

**OUTSTRETCH
OUTLAST
ALL OTHERS**

ONE PIECE NO SEAM

Trade Mark Registered

• Bands for Every Purpose
• Saves Time and Labor in Production
• We'll Make Them for Your Special Needs

PROMPT DELIVERY

NATIONALLY DISTRIBUTED . . . AVAILABLE AT YOUR REGULAR SUPPLIERS
All Plymouth Standard Bands Made to Federal Specifications

PLYMOUTH RUBBER COMPANY, Inc., Canton, Mass.

**REPLACEMENT OR A REFUND OF MONEY
Guaranteed by
Good Housekeeping
IS NOT AS ADVERTISED THEREIN**

For More Information Circle No. 275 on Inquiry Card—Page 17

Low Cost Motors



The Doerr Electric Corp., Cedarburg, Wis., has developed a new series of motors designed as Frame 566. The design is a combination of high production, low cost 56 frame components and a base designed to give the shaft height and location of mounting holes of a standard 66 frame. An oversized bearing on shaft end makes it possible to obtain a 3/4" diam. shaft extension. The 566 frame motor solves the problem of machinery manufacturers who want to continue with the 66 frame for either design or service reason.

Circle No. 92 on Inquiry Card—Page 17

Mercury Lamp Cuts Lighting Cost 15%

A 1000-watt mercury lamp has phosphor coating on the base half so that two thirds of its light output is directed down and one-third up. Thus, less light is controlled by the external lighting fixture. It reduces cost of lighting some 15%. In addition, a lighting system using the new lamp offers better maintenance and improved distribution of light as well as color improvement. The lamp is 15-1/16" long, has a mogul base and is rated at 53,000 lumens. The manufacturer, General Electric, Nela Park, Cleveland 12, Ohio, says lamp will be used in medium and high mounting industrial installations.

Circle No. 93 on Inquiry Card—Page 17

PURCHASING

STEEL SUPER-MARKET SPECIAL SERVICE

To give you this kind of one-stop-does-it-all service, we have increased the range of products we stock and we have added considerable new, high speed processing equipment in some of our plants. Call us today and find out how you can save time and money on —

- * Sheet and Strip in all finishes, tempers and carbons-HR, HRP and CR
- * Carbon Bars, HR and CF
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- * Angles * Beams * Plates * Shapes
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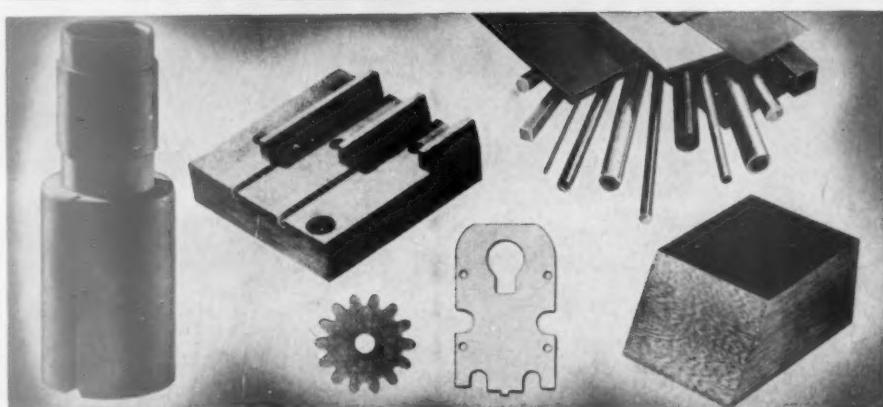
MODERN, HIGH SPEED, LOW COST PROCESSING SERVICES FROM 11 PLANTS

For More Information Circle No. 276 on Inquiry Card—Page 17



C-D-F PLASTICS AND FIBRE

One-Source Buying Simplifies Purchasing, Speeds Production



C-D-F DILECTO LAMINATED PLASTICS IN MANY GRADES FOR EVERY APPLICATION

Tested over the years by leading manufacturers of electrical equipment, C-D-F Dilecto has been proved to have outstanding electrical and physical properties and a uniformity of quality that can always be depended on.

Dilecto is made in many grades and is available in the form of sheets, tubes, rods, and complete fabricated parts. Bases available: glass mat, woven glass cloth, cotton

mat, cotton fabric, cellulose or asbestos paper, woven asbestos fabric, asbestos mat, woven nylon fabric. Resins include phenolic, melamine, silicone, polyester, epoxy, Teflon*.

C-D-F gives fast service on raw stock orders, has complete machining and fabricating facilities. Call your C-D-F sales engineer for purchasing and technical help, or write C-D-F for new catalog D-55.



C-D-F Celoron MOLDED PLASTICS combine high strength, durability

If you buy gears, couplings, insulators, molded plastics of almost any type—get the facts on C-D-F Celoron, a molded-macerated and/or combination laminated material bonded with phenolic resins. Celoron is strong enough for automotive timing gears, versatile enough for the smallest molded insulating part or the largest electromechanical supports. Get Celoron samples by writing to C-D-F. Also ask for Bulletin DC-54.

DIAMOND VULCANIZED FIBRE

in any form, size

Arc-resistant, arc-quenching, non-corroding, and mechanically strong, Diamond Fibre's high uniform quality is assured by America's most experienced fibre makers. Available from C-D-F in sheets, rolls, strips, tubes, rods, formed and machined specialties. Write for the new Diamond Fibre Catalog DVF-55.

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PURCHASING

PURCHASING NEWS



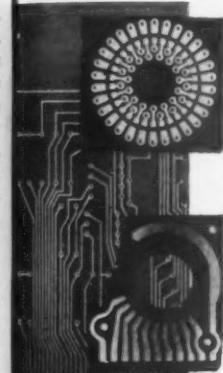
MICABOND INSULATING COMPONENTS help you build a better motor

C-D-F built-up or bonded mica products are being used to assure quality insulation in America's best-selling motors and generators. Only the finest mica splittings are used in Micabond; thus Micabond parts have uniform high heat-resistance and dielectric strength.

Forms of Micabond available: Sheets—Tubing—Flexible Tapes (with cotton, silk, paper, woven glass, and Mylar* backings)—Fabricated Parts in the form of Segments, "V" Rings, Slot Liners, Washers, Punchings of various shapes.

Make C-D-F your dependable source for mica products, and assure yourself strictly-followed specifications, low costs, fast deliveries. Call your C-D-F sales engineer or write for samples of Micabond materials.

Micabond Catalog M-55 is also yours for the asking.



Photos Courtesy of Photocircuits Corporation, Glen Cove, N.Y.

Dependable printed circuits rely on C-D-F metal-clad dielectric materials

Printed circuits etched from C-D-F Metal-Clad Dilecto Laminated Plastics are proving themselves in thousands of TV, radio, and communications equipment applications. Clad with copper foil and having superior heat-resistance, bonding strength and mechanical and electrical properties, Dilecto printed circuit materials are based on epoxy, phenolic, and Teflon* laminated plastics. Low dielectric loss, operating temperatures up to 200°C. in certain grades are characteristics of C-D-F Metal Clad Dilecto. High bond strength of foil to plastic makes punching and machining readily possible either before or after etching. Write for new Catalog D-55.

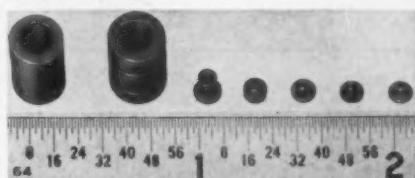
C-D-F Flexible Insulating Tapes have high heat-resistance, durability

Pressure-sensitive, thermoplastic, and thermosetting insulating tapes for all types of electrical equipment uses are made by C-D-F from silicone varnish, silicone-rubber, Teflon*, and Micabond, with various supporting fillers and backing materials. High-heat electrical applications are served by these durable materials and by the wide range of backings in which the tapes are provided. **Color Identification**—C-D-F tapes of Teflon are made in the standard RETMA colors for easy wire identification in assembly and repair of electrical equipment. Call your C-D-F representative, or write for test samples.



C-D-F plastics fabrication offers undivided responsibility for quality, delivery

Many manufacturers using machined and fabricated plastics parts have learned the economy of letting C-D-F do the fabrication for them—faster, more efficiently! By the time a manufacturer experiments, tests, and probably rejects much expensive raw material, C-D-F's experience with all plastics work can complete and ship the order without waste and without delay.



C-D-F's small-parts machining and inspection gets results like this. These automotive electrical insulators are mass-produced with uniform high quality at rock-bottom prices for the manufacturer.

At C-D-F's machine shops in Newark, Del., and Valparaiso, Ind., fabricating is done near the presses that produce the raw materials. No time is lost in handling materials; special production runs may be scheduled to coincide with machining operations; C-D-F's "experience bank" provides innumerable short cuts, little tricks that result in lower prices for the purchaser.

Simplified Production, Storage

Ultimate advantages to you in choosing C-D-F to machine and fabricate your plastics and fibre parts: Assurance of delivery to meet your production schedules; elimination of waste materials, shortages, rejects; uniform high quality of every fabricated part. These become C-D-F's responsibility, not yours.

NEW C-D-F SPIRAL TUBING

Here's a low-cost spirally-wound paper-plastic tubing available in 18 grades for a wide range of uses. Round, square, rectangular shapes for use as coil forms, insulating tubes, paint rollers, shipping containers, bushings. These are just a few of the many applications. Small sizes, thin walls are no problem. Write for 8-page Technical Folder ST-53, which gives properties, sizes, tolerances. Or call your C-D-F representative.

*duPont trademarks



CONTINENTAL DIAMOND FIBRE

CONTINENTAL-DIAMOND FIBRE DIVISION OF THE BUDD COMPANY, INC.

NEWARK 41, DELAWARE

For More Information Circle No. 277 on Inquiry Card—Page 17

OCTOBER, 1956

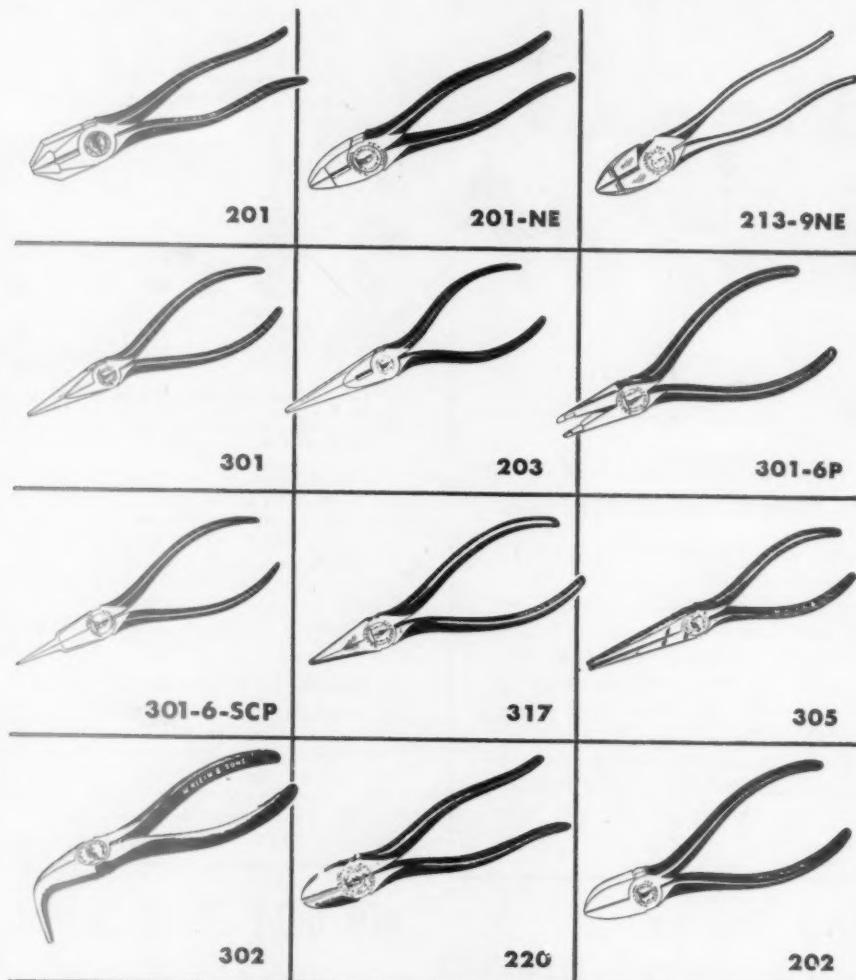
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KLEINS

Whatever Your Need In Pliers

By using the plier exactly suited to the job, work improves and time is saved. There is a style and size of Klein Plier made to meet any manufacturing or assembly line need.

The name Klein has stood for the finest pliers for a century . . . that's why Klein is the standard of comparison by which other pliers are judged. Be sure your order for pliers specifies Kleins.



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Pocket Tool Guide

Send for this Pocket Tool Guide listing Klein Pliers and giving valuable information.

NEW COIL SPRING PLIERS



Many Klein Pliers are available with a coil spring set close to the hinge. The spring is guaranteed for the life of the plier. It always keeps the jaws in open position and frees the inside of the handles of any obstruction.

Ask your supplier

Foreign Distributor: International Standard Electric Corp., New York

"Since 1857"



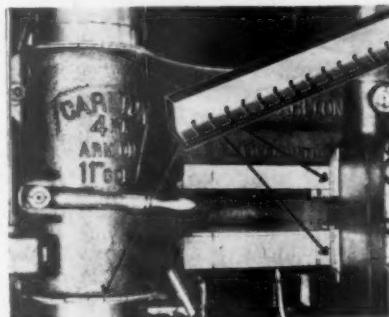
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For More Information Circle No. 278 on Inquiry Card—Page 17

new
products

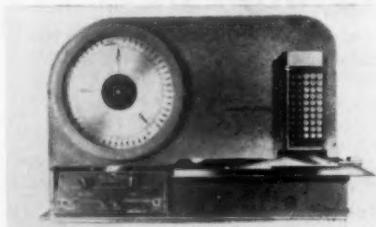
Wiper Protects Machine Tools Ways



An economical way wiper, according to its maker, Chicago Rawhide Mfg. Co., 1267 Elston Ave., Chicago 22, Ill., will effect very considerable cost savings for industry. In addition to increasing the service life of machine tool ways, it cuts expensive downtime and maintenance. The way wiper provides positive protection wherever metal parts slide over ways in close alignment. It wipes the ways clean, excluding all dirt, chips, fine abrasives and cutting compounds but leaving a thin protective oil film.

Circle No. 94 on Inquiry Card—Page 17

Electronic Weighing



A new conception in fast accurate weighing and weigh batching is announced by Fairbanks, Morse & Co., 600 S. Michigan, Chicago 5, Ill. Employing electronic load cells, the weighing instruments assure faster, more accurate weighing plus the added convenience of remote weight indication. The electronic instrumentation made possible (Please turn to page 208)



Send for Free 3-D Booklet on forgings by CHASE®!

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I want to see for myself how forgings by
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ANY SHAPE!

Quality costs less than you think
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Even the finest sand castings look crude when compared with Die-Pressed forgings by Chase! For the Chase forging process results in dense, smooth-surfaced pieces with remarkable precision in dimensions and detail.

That's why forgings by Chase can be so economical for you! They require far less machining and surface finishing. Rejections after machining are greatly reduced because these pieces are close-grained, non-porous and virtually free from sub-surface imperfections.

Get *stronger*, more efficient and attractive parts that are completely interchangeable with absolute minimum hand fitting! Find out about non-ferrous forgings by Chase, blank or machined and polished and plated if desired. Send the coupon above, today!

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SUBSIDIARY OF KENNECOTT COPPER CORPORATION
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a good source
to know...

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Chemicals & Metals

... Headquarters for Ultrox Ceramic Opacifiers and special Metals, M&T is also the world's largest producer of Tin Chemicals and Materials.



for

Welding

... M&T provides all the necessities: Murex Arc Welding Electrodes . . . A C and D C power supplies . . . Inert-Arc

Equipment . . . popular Welding Accessories . . . Thermit and Equipment . . . and for inspection, the new Kel-Ray gamma ray Radiographic Equipment.



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... UNICHROME is an M&T trademark . . . a recognized mark of quality in copper, bright nickel and chromium plating processes and plating supplies . . . in chromate finishes, and in organic coatings.



Stocks are warehoused in key locations coast to coast. Technical aid is always available.

METAL & THERMIT
CORPORATION

GENERAL OFFICES: RAHWAY, NEW JERSEY

For More Information Circle No. 280
on Inquiry Card—Page 17

new products

(Continued from page 206)

with electronic weighing devices streamlines weighing operations and simplifies data processing. Weight recording instruments may be located as much as 250 feet from the scale platform. In addition to electronic scales, two electronic weigh batch control systems are available. They batch weigh any material that can be handled into the batch hopper by piping, conveyors, etc.

Circle No. 95 on Inquiry Card—Page 17

All-Steel Hammer With Neoprene Grip



Stanley Tools, Div., The Stanley Works, New Britain, Conn., has introduced what it claims to be "the finest hammer ever made." Perfectly balanced for accurate, untiring blows, the hammer is equipped with a head which has been given a precisely controlled heat treatment, resulting in uniform fine-grain structure of steel from face surface to claw tips. The heat-treated chrome-alloy tubular handle is double-locked in the hammer head by a double-tapered eye and will not break. Contoured to fit the hand comfortably, the neoprene grip is inseparably bonded to the handle.

Circle No. 96 on Inquiry Card—Page 17

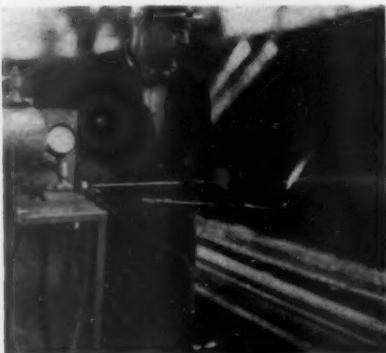
Micrometer Checks Thickness, Locates Hole



A micrometer with an extra small diameter anvil (.089") has been designed by The Lufkin Rule Co., Saginaw, Mich., with its dimensions small enough to enter a 3/32" ID hole or slot. Among its uses are to determine wall thickness of small diameter tubing, gage distance of a hole from the edge and check slots and grooves. The instrument has a non-glaring chrome clad finish on thimble and hub, and has a black enameled, heavy duty ribbed, half frame. It has a range of 0 to 1" by 1000ths and is furnished with either a plain thimble or a ratchet cap.

Circle No. 97 on Inquiry Card—Page 17

Hydraulic Fluid Won't Burn



A "snuffer" type hydraulic fluid is being introduced on the market by Shell Oil Co., 50 W. 50th St., New York 22, N.Y. Its fire-resistant qualities prevent it from burning on contact with flames, heated metal surfaces or molten metal. Trade named Iris

Fluid 902, it is a special formulation of water, petroleum oil and emulsifying agents. The fluid is particularly suitable in industries where hydraulic leaks or line ruptures would be fire or explosion hazards. It replaces any conventional oil and can be installed without modification of lines, pumps or cylinders.

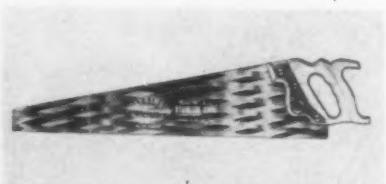
Circle No. 98 on Inquiry Card—Page 17

Nylon Conveyor Belt Fabric

A belt made with five plies of nylon-filled fabric is claimed by its maker, B.F. Goodrich, Akron, Ohio, to be as strong as a steel cord belt rated at 1000 lb per inch of ply. It would take 20 plies of 42-oz cotton fabric to provide the same strength. The fabric is a combination of super strength rayon with nylon filler, which permits belt operating tensions up to 200 lb per ply width. Such tension requirements once were only met by using steel cable for interior reinforcement of belts. Conveyors equipped with the nylon belt have four times carrying capacity of cotton fabric belts.

Circle No. 99 on Inquiry Card—Page 17

Stainless Steel Saw Lasts Longer In Corroding Air



A stainless steel, rust-proof hand saw is announced by Atkins Saw Div., Borg-Warner Corp., Indianapolis 9, Ind. It offers a choice of butyrate plastic or 11-ply waterproof marine plywood handles and incorporates a handy "hang-up" hole in end of blade. This No. 500 stainless steel hand saw has unlimited possibilities for longer life, especially when exposed to unusual atmospheric conditions. It will not rust or mark and maintains its bright finish indefinitely.

Circle No. 100 on Inquiry Card—Page 17

METAL & THERMIT—

for a bonus in

Welding



Something extra goes into the package when you purchase M & T welding equipment and supplies for your company . . . you get service and more of the welders' needs from nearby M & T sales offices and authorized distributors—qualified technical assistance for your engineers and welders. To assure safe, efficient, economical output, specify MUREX® Electrodes . . . M & T Arc Welding Machines . . . M & T Cleaning Tools, Holders, Helmets, Connectors, Protective Clothing and other accessories . . . Equipment and Materials for Thermit® welding repair and construction . . . Kel-Ray® Projectors for industrial radiography. Get the dividends too—*M & T skill and service, as near as your telephone.*

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METAL & THERMIT
CORPORATION

GENERAL OFFICES: Rahway, New Jersey

For More Information Circle No. 281 on Inquiry Card—Page 17



The Department Store of Steel



Accurate plate and sheet shearing are

two of the most important

functions of a modern steel warehouse.

J & L Warehouses are fully equipped to perform these services to your specifications.

Let our many other facilities such as flame cutting and hacksaw cutting work for you to save you time, labor and money.



The Department Store of Steel

JONES & LAUGHLIN STEEL WAREHOUSE DIVISION

JONES & LAUGHLIN STEEL CORPORATION

DIVISION OFFICES INDIANAPOLIS 7, INDIANA

**new
products**



ACME

Hose Products
for applications
involving
High Pressures
High Strength
Flexibility
Durability
Misalignment
Expansion
Contraction
and
Resistance to
Vibration
Shock
High
Temperature
Abrasion
Wear
Corrosion
Oil & Solvents

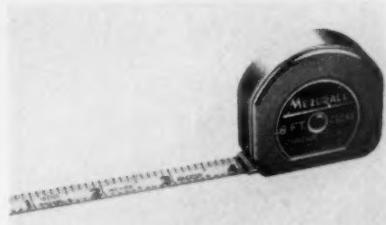
Every length of ACME'S varied line of RUBBER HOSE is specially engineered to meet the requirements of the application for which it is recommended. It is made by hose specialists in a plant devoted solely to hose manufacture for 53 years. What are your needs? Chances are we have it readily available in stock. If not, we'll make it for you.

**PUT THE JOB
UP TO.....**

Acme
HOSE SPECIALISTS
ACME RUBBER MANUFACTURING CO.
608 LEVER STREET TRENTON, N.J.

For More Information Circle No. 283 on Inquiry Card—Page 17

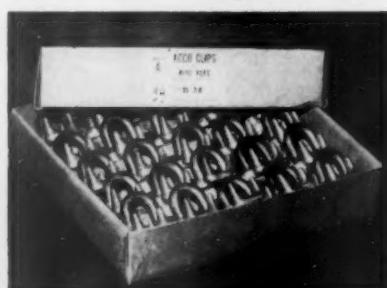
**Tape Rule With Decimal
Graduations**



The Lufkin Rule Co., Saginaw, Mich., is marketing a tape rule with decimal graduations in 10ths (.10) and 50ths (.02) inch to meet requirements of the electronics, automotive, aircraft and other industries. Top edge of blade is graduated in 10ths, and bottom edge in 50ths. The 50ths divisions are "rapid reading"—each fifth division is numbered. Tape blade has an all-metal chrome-clad finish and a self-adjusting end hook. It is furnished in a heavily plated steel case and in lengths of 6, 8, 10 and 12 feet.

Circle No. 101 on Inquiry Card—Page 17

**Wire Rope Clips
Packaged in New Way**



The Wire Rope Div., American Chain & Cable Co., Inc., Wilkes-Barre, Pa., is utilizing a new concept in industrial packaging for stocking and shipment of drop forged wire rope clips. Strong lightweight containers, secured with steel strapping, replace the usual method of stocking the wire

(Please turn to page 214)



LELAND explosion-proof MOTORS SAFELY PUMP LPG

Leland's superior explosion-proof motors, designed for pumping volatile materials, function under a wide variety of explosive conditions—like the LPG installation illustrated.

Here a custom-engineered Leland motor, assembled integrally with an LPG pump manufactured by Corken's Inc., Oklahoma City, provides additional space besides appearance and performance advantages. Anhydrous ammonia, another newcomer, is similarly handled in farm fertilizing programs, with Leland motors driving pumps produced by many U. S. Manufacturers.

For over thirty years, explosion-proof Leland

gasoline pump motors have outsold all others combined. Now, as the American economy demands additional volatiles, for use in industry, on the farm, or in the home—look to Leland for explosion-proof motor drives. You'll find reliability and performance in a complete line of explosion-proof motors, standard and special constructions, listed by Underwriters' Laboratories for Class I, Group D, and Class II, Groups F & G service; drip-proof and totally enclosed types, too. For additional information on ratings from $\frac{1}{4}$ to 5 horsepower, soon to 20 HP, write, wire or phone us, today.



THE LELAND ELECTRIC COMPANY

Dayton 1, Ohio

Division of AMERICAN MACHINE & FOUNDRY COMPANY



the NEW 

SUPERGAUGE®



**...built
to last a lifetime!**

With proper application, the new USG Supergauge will last a lifetime!

SEGMENT—stainless steel, with nylon-faced gear section. Nylon-to-metal bond stabilizes the nylon against expansion and contraction . . . maintains accurate pitch diameter . . . assures proper mesh with stainless steel pinion under severe temperature and moisture conditions.

MONO-UNIT CONSTRUCTION—permits easy removal of complete gauge assembly for inspection and adjustment.

ARC-LOC MOVEMENT—permits all calibration adjustments of gauge assembly from rear without removing dial and pointer.

LEGEND ON DIAL—gives complete description of socket, Bourdon tube and movement material for ready identification.

MICROMETER ADJUSTABLE SELF-LOCKING POINTER—permits accurate repositioning of pointer.

These features are also available in USG Solfrunt Gauges with solid front construction.

Supergauges available in 4½", 6", and 8½" sizes. For complete information on case styles, materials of construction and connections write for Publication 1819.

UNITED STATES GAUGE
Division of American Machine and Metals, Inc.
Sellersville, Pa.

Home of the SUPERGAUGE

For More Information Circle No. 285 on Inquiry Card—Page 17

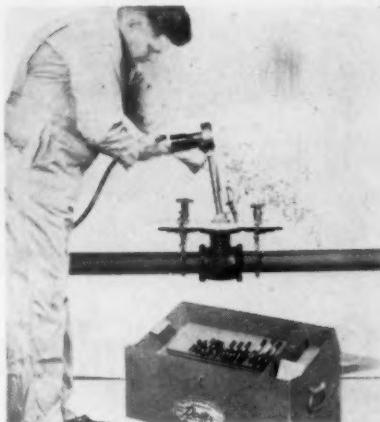
new
products

(Continued from page 212)

clips, which utilized burlap bags, storage bins or kegs. The containers vary in size to fit the measurements of the clips, which are available in 14 sizes to fit wire ropes of 1/8" to 1¼" OD. The clips are boxed in lots of 100 for the smallest size to 10 for the largest. The containers serve both as a storage and shipping container.

Circle No. 102 on Inquiry Card—Page 17

One Man Can Regrind on Line Valves up to 12"

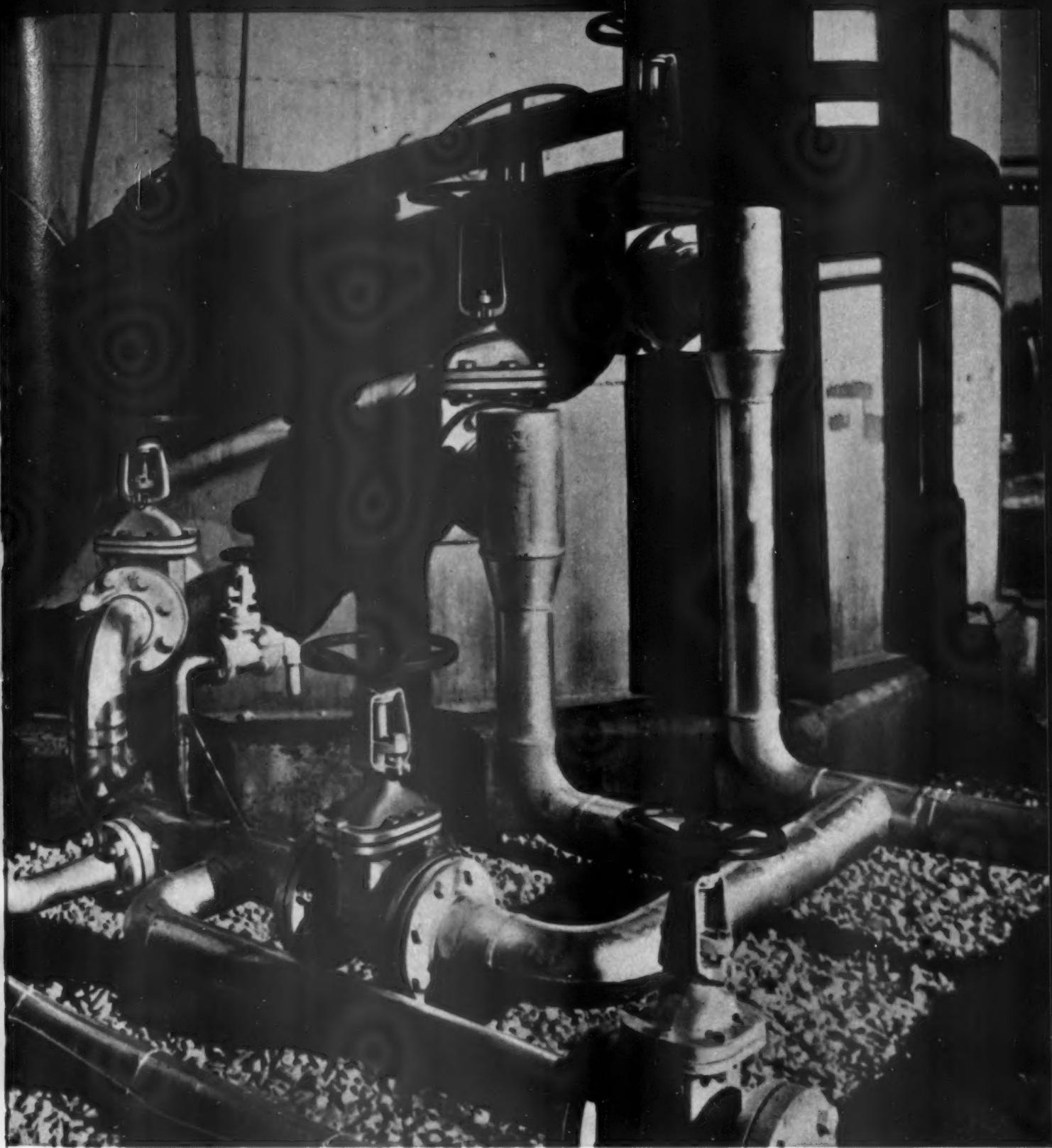


Savings as high as 400% on labor, increased production, fuel savings and power gains are claimed by Leavitt Machine Co., Orange, Mass., for its motor-driven valve reseating grinder. One man using the versatile machine can regrind any globe or gate valve from ¼" to 12" without removing the valve from the line. By use of a high speed motor and newly developed abrasive cloth grinding elements, the machine can grind the seat of any valve, regardless of material hardness. As any valve can be ground right in line, need for 3 and 4 man crews to remove defective valves is eliminated.

Circle No. 103 on Inquiry Card—Page 17

For More Information Circle No. 286 on Inquiry Card—Page 17→

PURCHASING



Meet three synthetic detergent experts

You're looking at a Philadelphia installation of The Atlantic Refining Company (expert #1).

Ultrawet, an important ingredient of synthetic detergents, is the product being processed in this modern plant designed and built by The H. K. Ferguson Co. (expert #2).

Helping to prevent contamination of the product due to corrosion are long-lasting, red-wheeled valves made by Aloyco (expert #3). Made of corrosion-resistant Alloyco 20,

the gate and globe valves used here handle a 98% concentration of sulfuric acid at up to 180° F.

Whatever your process, whichever corrosives you need to keep in line, it pays to check first with Aloyco. As the world's largest manufacturer of corrosion-resistant valves exclusively, we're most likely to have the valve you need. Write Alloy Steel Products Company, Inc., 1301 West Elizabeth Ave., Linden, New Jersey.



Subsidiary of Walworth Company

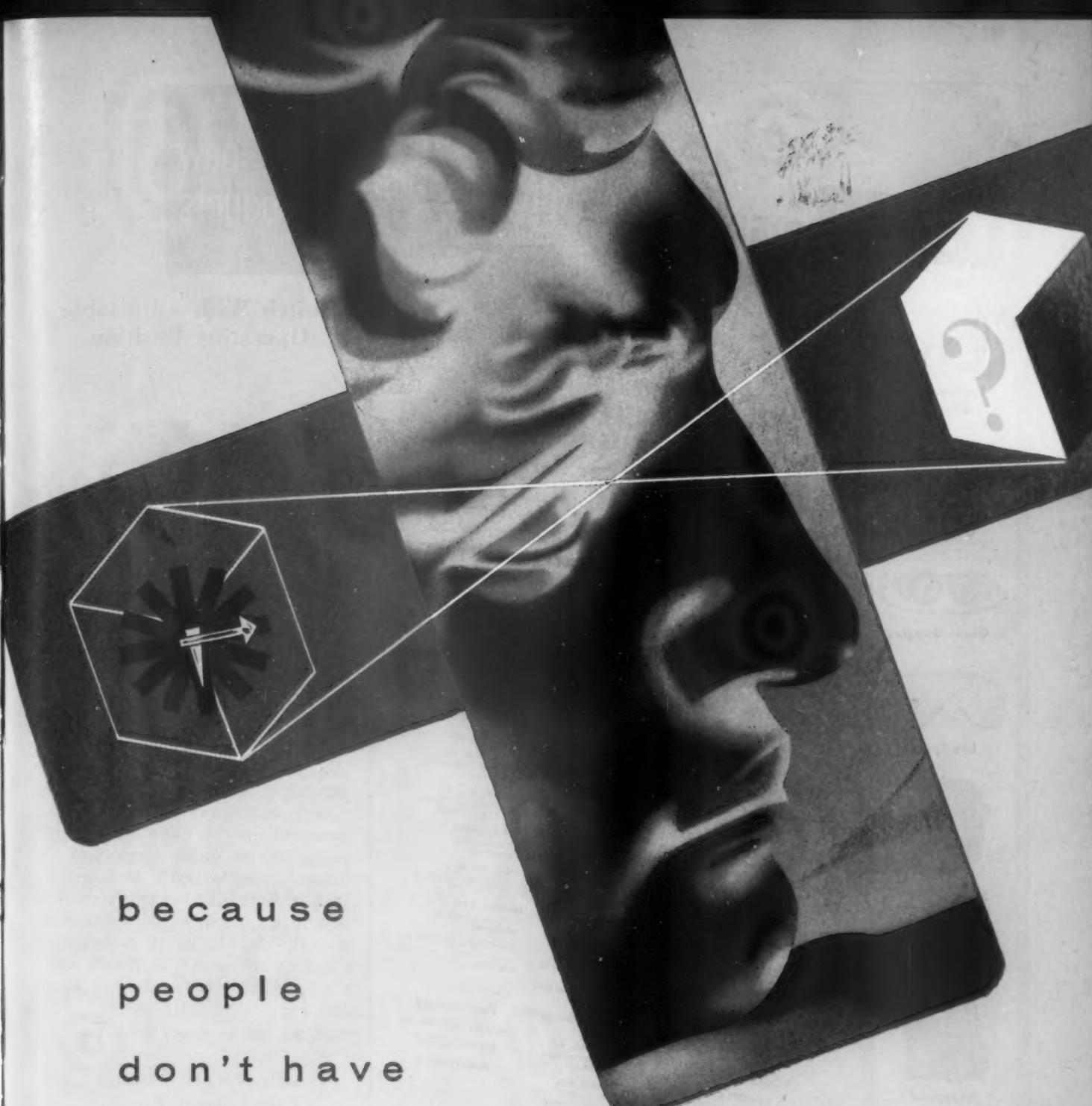
Strength WHERE IT COUNTS



Pick up a Bethlehem Bolt at random, any type of bolt, and you'll recognize it as a quality product. For Bethlehem Bolts have sturdy, easy-to-grip heads, straight shanks, smooth-fitting threads . . . plus plenty of strength, where it counts.

What's more, Bethlehem Bolts are made in hundreds of types and sizes, making it easy for your jobber to furnish exactly what you need. How about calling him right now.

Bethlehem Bolts Are Good Bolts



because
people
don't have
x-ray
vision...

The container must sell your product! That's why a creative approach for containers is all important. And, that's why Stone has developed new techniques . . . new printing processes . . . new pattern background papers . . . and unusual design ideas to project the full sales appeal of the product to prospective customers.

STONE CONTAINER CORPORATION

4200 WEST 42nd PLACE—CHICAGO 32, ILLINOIS—Plants and sales offices in most principal cities

CESCO

CUP-TYPE GOGGLES

SPECTACLE-TYPE GOGGLES

PLASTIC FRAME GOGGLES

COVER GOGGLES

LITE-SPECS

FIBER GLASS HELMET

APPROVED RESPIRATOR HOOD

HAT N' SHIELD

FACE SHIELDS

CHICAGO EYE SHIELD COMPANY
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APPROVED RESPIRATORS

CESCO FOR SAFETY

CUP-TYPE GOGGLES

Chemical Goggles

WHATEVER TYPE OF SAFETY EQUIPMENT YOU NEED... BUY WITH CONFIDENCE from the CESCO Distributor listed here

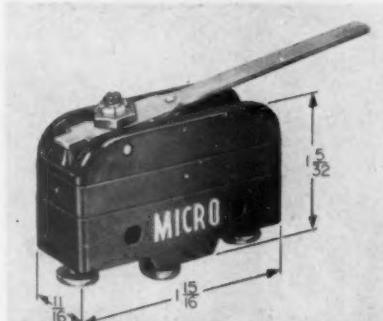
You don't need to hunt for the best source of safety equipment. Take it from CESCO, you can buy with confidence from the firms listed here. CESCO has the finest type of distributor representation—the kind you want when in the market for every type of safety and protective equipment. These firms are safety specialists and well stocked with equipment that has stood the test of time in industrial plants everywhere.

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BATON ROUGE, LA. Guardian Safety Equipment Co. 3615 Capitol Heights Ave.	KANSAS CITY, MO. Safety, Incorporated 17 E. 31st Street	SALT LAKE CITY, UTAH Universal Fire & Safety Equipment Co., Box 1587
BIRMINGHAM, ALA. "L. P." Harten Company 2627 Seventh Avenue, South	KNOXVILLE, TENN. Safety Equipment Distributing Co. 832 W. Main Avenue	SAN MATEO, CALIF. Guardian Safety Equipment Co. 220 Third Avenue
BOSTON, MASS. General Equipment Corporation 261 Franklin Street	LITTLE ROCK, ARK. Fire Appliance & Safety Co. 1114 W. Markham	SPOKANE, WASH. Spokane Safety Appliance Co. North 219 Division Street
BUFFALO, N. Y. The Wilson Company 1443 Main Street	LOS ANGELES, CALIF. Guardian Safety Equipment Co. 7223 S. Main Street	TOLEDO, OHIO Williams & Co., Inc. 945 Kane Street
CHICAGO, ILL. Universal Safety Equipment Co. 5115 Diversey	LOUISVILLE, KENTUCKY Williams & Co., Inc. 1109 S. Preston Street	TULSA, OKLA. Guardian Safety Equipment Co. 1742 S. Main Street
CINCINNATI, OHIO Williams & Co., Inc. 3231 Frederic Avenue	MILWAUKEE, WIS. Universal Safety Equipment Co. 3155 S. 7th Street	MEXICO CITY, D. F. Safety Equipment S. A. Sullivan-95
CLEVELAND, OHIO Williams & Co., Inc. 3700 Perkins Avenue	ORANGE, N. J. Guardian Safety Equipment Co. 400 S. Jefferson Street (New York-New Jersey Area)	MONTRÉAL, CANADA The Butler Optical Company, Ltd. 1520 Mountain Street
COLUMBUS, OHIO Williams & Co., Inc. 1851 Williams Avenue	PEORIA, ILL. Standard Industrial Products Co. 920 N. Garfield	
DALLAS, TEXAS Guardian Safety Equipment Co. 900 Jefferson Tower Bldg.	PHILADELPHIA, PA. Guardian Safety Equipment Co. 214 S. 45th Street	
DENVER, COLORADO General Welding Supply Co. 1434 Blake Street	PITTSBURGH, PA. Williams & Co., Inc. 901 Pennsylvania Avenue	
DETROIT, MICH. Avairil Equipment Company 19225 Conant Avenue	ST. LOUIS, MO. Safety, Inc. 2608 Olive Street	

You can buy with confidence from CESCO distributors

new products

Switch With Adjustable Operating Position



Micro Switch, Freeport, Ill., is marketing an adjustable-lever-actuated basic switch. Its operating position, adjustable between .670" and .880" is controlled by means of a screw without removing the switch from its mounting. The switch, designated BZ-2RW-899-A2, is well suited for use on timers, computers or other multi-mounted switch devices. It is available in either straight or formed lever designs, and either with or without a roller. A choice of solder type or screw terminals is available. Models of switch are rated at 15 amp. 125, 250 or 460 v a-c; 1/2 amp 125 v d-c; 1/2 amp 250 v d-c.

Circle No. 104 on Inquiry Card—Page 17

Effectively Cleans Condenser Tubes



A super-jet condenser cleaning tool utilizes a handy gun-and-slug method to thoroughly remove slime and scale at time savings over ordinary mechanical methods. One man can quickly load an entire bank with clean-
(Please turn to page 220)

toughest

Royal Blue rope
is made of the *toughest*
rope wire ever developed...

Roebling Type 1105



John A. Roebling's Sons Corporation, Trenton 2, N. J., Subsidiary of The Colorado Fuel and Iron Corporation BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON,
51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 2340 GLENDALE-MILFORD RD., EVENDALE • CLEVELAND, 13225 LAKEWOOD HEIGHTS
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For More Information Circle No. 290 on Inquiry Card—Page 17

COST CUTTING

W&B REAMERS

Write for catalog No. 105

W&B HIGHER PRODUCTION

W&B LONGER TOOL LIFE

W&B SMOOTHER, MORE ACCURATE HOLES

W&B LARGER IN-STOCK SELECTION

CHECK WITH YOUR INDUSTRIAL DISTRIBUTOR TODAY!

WHITMAN & BARNES

DRILLS REAMERS COUNTERBORES COUNTERSINKS, TOOL BITS, CARBIDE TOOLS, SPECIAL TOOLS

40015 PLYMOUTH ROAD • PLYMOUTH, MICHIGAN
NEW YORK • CHICAGO • LOS ANGELES

For More Information Circle No. 292 on Inquiry Card—Page 17

new products

(Continued from page 218)

ing slugs and shoot them through in rapid succession. The result is substantially reduced labor and shut-down time. The lightweight rugged duty tool weighs only $2\frac{3}{4}$ lb enabling an operator to use it without fatigue for lengthy periods. It can be operated by either air or water pressure at from 50 to 200 psi. It is made by Crane Packing Co., Dept. PHN, Morton Grove, Ill.

Circle No. 105 on Inquiry Card—Page 17

Solder Fluxes For Copper and Alloys



Utilizing safe-to-handle derivatives of hydrazine, non-corrosive, quick wetting solder fluxes have been developed primarily for use on copper and copper base alloys. They promote solder spread over a wide range of temperatures more effectively than conventional zinc-ammonium chloride fluxes, reducing oxide to free metal as temperature of work is raised above 375 F. The fluxes may be applied to parts being soldered in most of the usual methods. The usual tin-lead solders can be used, according to the manufacturer, American Smelting & Refining Co., Federated Metals Div., 120 Broadway, New York 5, N.Y.

Circle No. 106 on Inquiry Card—Page 17

ONE OF A SERIES . . .

What makes a cylindrical roller bearing good?

The RIGHT ROLLER DESIGN and QUALITY CONTROL

The design and quality of the *rollers* play a large part in the performance of a cylindrical roller bearing. At right are some of the vital factors which must be considered.

All these factors are scrupulously controlled by the most modern precision equipment to insure maximum performance and life for every HYATT Roller Bearing. You'll find more details in HYATT General Catalog No. 150, or your nearby HYATT Sales Engineer will gladly help you choose the type best suited to your requirements. Remember, HYATT is America's first and foremost maker of cylindrical roller bearings. Hyatt Bearings Division of General Motors, Harrison, New Jersey.



1. DISTRIBUTION OF LOAD WITHIN THE BEARING

Rollers are subjected to load only while in the "load zone," with maximum load while on the line of action of the bearing load, as shown in diagram 1. The theoretically perfect "load zone" extends from -90° to $+90^\circ$ from the line of action, but this is neither practical nor necessarily desirable. Under normal loadings, the actual "load zone" may range from 90° to 120° , depending on load and mounted internal clearance. This distributes the load so the load on the heaviest-loaded roller is approximately $5/N$ times the bearing load, where N is number of rollers.

2. DISTRIBUTION OF LOAD WITHIN ROLLER'S AREA OF CONTACT

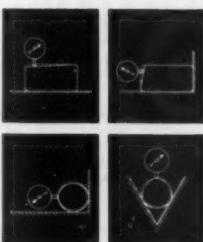
A cylinder deflects locally in the region of engagement when loaded between flat plates. The plate also deflects, so the original line of engagement is broadened into a "dog-boned" area under load, as shown in diagram 2. Moreover, deflected cylinders must gather in metal at their ends in two planes, and this end-loading effect can seriously reduce the life of a cylindrical roller bearing. All HYATT rollers have generous corner radii or blended chamfers to reduce end effect; and all HYATT Hy-Load rollers also have crowning to allow the contact area to "fade out" evenly (diagram 3).

3. DISTRIBUTION OF LOAD ACROSS ROLLER

The unit load on any roller is uniformly distributed axially except at the crowned ends where it drops to zero as shown in diagram 4. The summation of unit loads represented by area A is the total roller load. This same load under misalignment results in an area equal to area A; but maximum unit load is considerably greater and the bearing will have a shorter life than a properly aligned one. When the same total load is applied to an uncrowned roller, an even higher unit load results. This demonstrates the value of crowning when misalignment occurs.

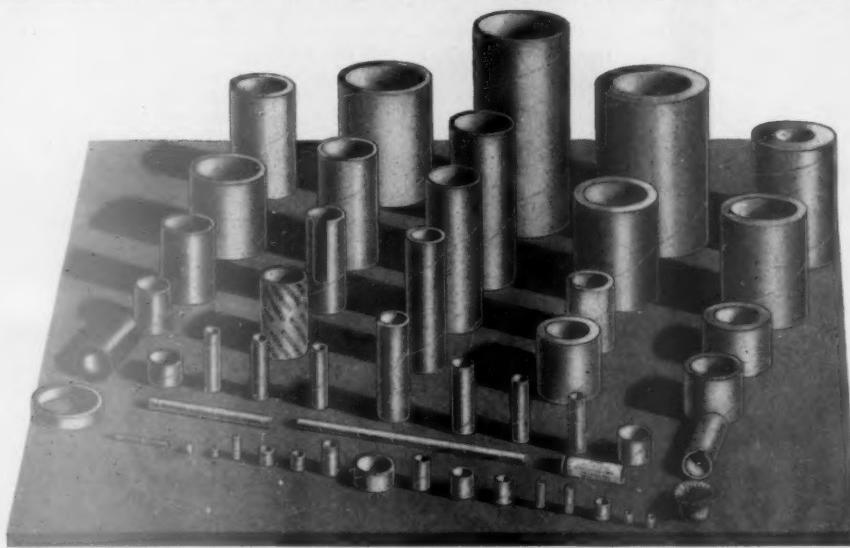
4. EFFECT OF ROLLER QUALITY ON BEARING PERFORMANCE

Lack of roller quality control has a very adverse effect on performance: 1. A roller with excessive taper tends to uneven load distribution and abnormal temperature rise. 2. A roller with excessive end square tends to noisy bearing performance. 3. A roller with excessive two-point out-of-round tends to poor segregation and poor bearing life. 4. A roller with excessive three-point out-of-round tends to noisy bearing operation. 5. A roller with poor finish tends to wear on all operating surfaces and noisy operation. 6. A bearing with excessive roller-to-roller diameter variation tends to poor bearing life. 7. A bearing with excessive roller-to-roller length variation tends to poor thrust capacity, abnormal temperature rise.



For More Information Circle No. 293 on Inquiry Card—Page 17

CLEVELAND CONTAINER



PRODUCES TUBING TO MEET EVERY NEED!

Tubing of every kind, type and size, in diameters up to 24" . . . in any length . . . in light or heavy wall . . . manufactured from chipboard, kraft, jute, fish paper, etc., as required.

Plain or printed . . . wax impregnated . . . lined with special grease-proof or anti-corrosive papers. Also investigate Cleveland Container tubing for electrical uses.

Shipments made promptly from the plant nearest you.



Why pay more? For good quality . . . call CLEVELAND!

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CLEVELAND CONTAINER COMPANY

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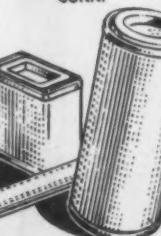
ABRASIVE DIVISION
CLEVELAND

• ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS • SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

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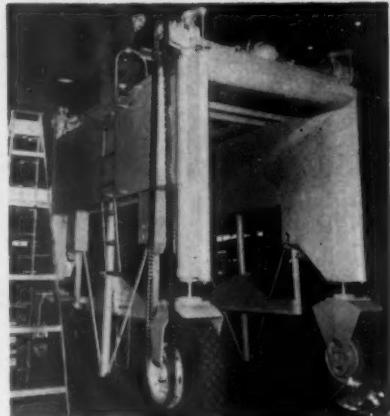
SALES OFFICES:
NEW YORK CITY
WASHINGTON, D. C.
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WEST HARTFORD,
CONN.



For More Information Circle No. 294 on Inquiry Card—Page 17

new
products

Welding Mammoth Jobs



Air Reduction Sales Co., 150 E. 42nd St., New York 17, N.Y., has developed an iron powder contact electrode, Easyarc 12, for bigger-than-usual welding jobs, such as welding this Hyster supersize straddle truck used in dockside service. It is claimed to effect 20% savings in manhours over conventional electrode time. Packages in sizes ranging up to 120" x 64" are said to be capable of being handled by the electrode. Circle No. 107 on Inquiry Card—Page 17

Multiple-Strand Wire



National-Standard Co., Worcester Wire Works Div., Worcester, Mass., has available brush wire in multiple strands with an exact number of wires in each bunch. Supplied in up to 400-strand bunches, the wire is supplied in the form of tempered or untempered crimped or straight wire

(Please turn to page 226)

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on Inquiry Card—Page 17→

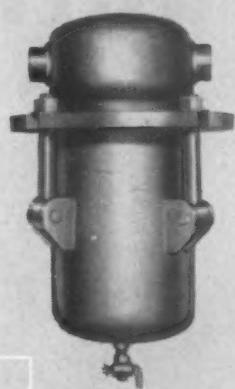
PURCHASING

Standard Air Filter ▶



▲ Manual Loading Regulator

Heavy Duty Air Filter ▼



▲ Combination Air Filter
and Pressure Regulator

NOW—available through your



**Performance-engineered
filters and regulators
for pneumatic instrumentation**

Your pneumatic control instruments need clean, dry air at the right pressure to assure best performance. That's where Brown air filters, dripwells and regulators fit into your plant's control systems. Available through your local Honeywell Supplies Man, these essential accessories protect instruments . . . reduce maintenance . . . keep control performance at peak level. A complete line, in a range of sizes and capacities, gives ample choice to match your specific needs.

Ask your Honeywell Supplies Man about these air control accessories. And ask him, too, to tell you how the HSM Plan can apply personalized attention to all your instrument supplies purchases . . . with attractive dollar savings, reduction in inventory, and simplified paper work. Call him today at your local Honeywell office . . . as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR Co., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

● REFERENCE DATA: Write for Catalog 8951, "Pneumatic Control Accessories" . . . and for the booklet, "The HSM Plan."



MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS

Tel. 215-584-2100



Different In Every Way! New 44 ALUNDUM abrasive (at right) looks different from ordinary aluminum oxide abrasive, with a finer grained surface that denotes greater density and toughness. That's because it's made differently, by a special Norton-developed electric furnace process. And that's why it performs differently, with new time-and-money-saving "Touch of Gold" advantages.

INTRODUCING . . . the NEW

4.4 ALUNDUM* abrasive

...most sensational
non-premium
abrasive
ever developed
...with new
"TOUCH of GOLD"
benefits for
better, lower cost
grinding



The big news about the new 44 ALUNDUM abrasive is this:

For a non-premium priced aluminum oxide abrasive, its performance, job range and service life are truly sensational.

It's a real work-horse abrasive — with extra ruggedness and durability that can take on a lot of tough grinding jobs and come back for plenty more.

This has been proved in more than 1100 tests. Plants all over the country have reported that 44 ALUNDUM wheels have these advantages over ordinary aluminum oxide wheels:

LONGER LIFE	FASTER RATE OF CUT
COOLER CUTTING	MORE PIECES PER DRESSING
HOLD FORM BETTER	BETTER FINISH

Typical Reports

Centerless Grinding. "44 ALUNDUM wheels much more versatile; also, time cut on one 14-hour job to 10 hours."

Cylindrical Grinding. "More pieces per dressing and longer wheel life."

Internal Grinding. "Freer cutting, hold form better with less dressing and improved finish."

Snagging. "Faster cutting, better finish, much less depth of burn."

Disc Grinding. "Coil spring production increased from 100,000 to 125,000."

Ball Grinding. "Roughing production increased 46% per wheel, with excellent performance duplication from wheel to wheel."

Thread Grinding. "Hold form better, 50% less dressing, maintain better tolerance with no sign of burn."

Mounted Wheels. "Four times longer lasting, with equal rate of cut."

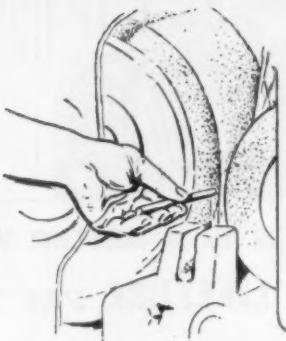
Straight Facts

New 44 ALUNDUM abrasive is not a cure-all. For example, nothing can replace 32 ALUNDUM abrasive for precision grinding on high speed steels or CRYSTOLON* abrasive for most non-ferrous grinding jobs.

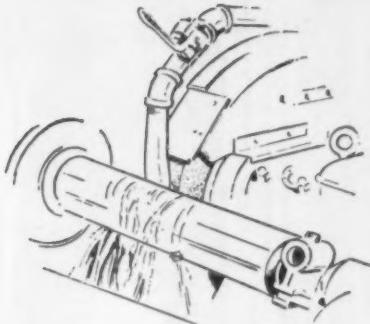
But — on any job where non-premium priced aluminum oxide abrasive is used, "44" will give results ranging from at least equal to very much better. And — "44" has a much wider job range.

Take advantage of this outstanding new abrasive value. See your Norton Distributor for 44 ALUNDUM wheels in the bonds, wheel types and sizes you need. Or write to the nearest district office of NORTON COMPANY, Worcester 6, Mass. Distributors in all industrial areas, listed under "Grinding Wheels" in your phone book, yellow pages. Behr-Manning Company, Troy, N. Y., division of Norton Company. Export: Norton Behr-Manning Overseas Incorporated, Worcester 6, Massachusetts.

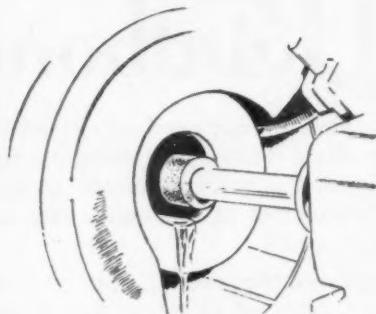
44 ALUNDUM abrasive gives excellent results on many grinding applications



CENTERLESS



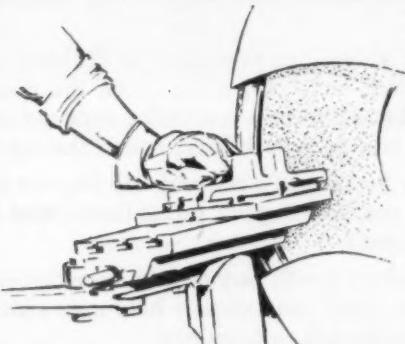
CYLINDRICAL



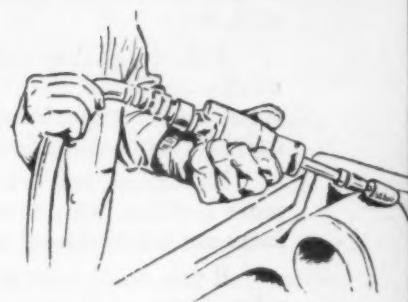
INTERNAL



SNAGGING



DISC GRINDING



MOUNTED WHEELS

... also a standout for saw gumming, ball grinding and thread grinding.

NORTON
ABRASIVES

Making better products...to make your products better

NORTON PRODUCTS: Abrasives • Grinding Wheels • Grinding Machines • Refractories

BEHR-MANNING PRODUCTS: Coated Abrasives • Sharpening Stones • Behr-cat Tapes

*Trade-Marks Reg. U. S. Pat. Off. and Foreign Countries



**THERE IS A BETTER WAY TO
GET LIFETIME PROTECTION
AGAINST RUST... USE**

DETREX
Paintbond®

Corrosion is the arch enemy of your product's paint finish . . . it is the direct cause of peeling, flaking and unsightly stains. With Paintbond you can effectively (and economically) foil the demon rust for a lifetime regardless of the conditions under which the product is normally used!

Paintbond is a zinc-iron phosphate coating, applied directly to the metal prior to painting. Applied by either dip or spray, Paintbond provides a moisture-proof fine-grain crystalline coating which is chemically interlocked with the metal surface. When paint is applied over it, the paint flows into the microscopic crevices between the crystals and is securely interlocked with the metal.

Paintbond thus puts an end to peeling and flaking, thoroughly seals the metal from moisture. Even when the paint is scratched through, Paintbond confines rust to the exposed metal only! No more spreading rust or ugly stains around the scratch.

Important, too, is the fact that Paintbond will impart a far more lustrous, attractive surface to your paint finish and thus increase sales appeal as well.

If you paint your product it will pay you to investigate the advantages of Paintbond. Mail the coupon below or call the nearest Detrex sales office for full particulars.

Send me complete information on Detrex Paintbond.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

ZONE _____ STATE _____

DEPT. A-712



DETREX

CHEMICAL INDUSTRIES, INC.

BOX 501, DETROIT 32, MICHIGAN

DEGREASERS • DEGREASING SOLVENTS • WASHERS • ALKALI
AND EMULSION CLEANERS • PHOSPHATE COATING PROCESSES

For More Information Circle No. 297 on Inquiry Card—Page 17

For More Information Circle No. 226
on Inquiry Card—Page 17

new products

(Continued from page 222)

in commercial brush wire sizes, ranging from 0.008" to 0.018". Supplying an exact number of wires in each bunch eliminates guesswork and reduces laborious manual operations, enabling brush manufacturers to produce uniform, balanced brushes more efficiently.

Circle No. 108 on Inquiry Card—Page 17

Long-Lasting Bias Cloth Buff



Engineered for high speed volume on automatic machines, a bias cloth buff features "centerless" construction. In this unique design, the cloth is securely gripped by special tight-locking steel rings, leaving the center completely open for cooler air-conditioned running. This permits faster machine speeds without burning. As a result, this bias cloth buff has increased production life, causing it to out-last and out-perform all others. The simplified design of the steel clinch ring permits locking together an almost unlimited number of sections. This enables the user to build up a buffering face of up to 12" or more with complete safety. American Buff Co., 2415 La Salle St., Chicago 16, Ill., makes it.

Circle No. 109 on Inquiry Card—Page 17

"the front office was screaming its head off"



Screw failures were driving the production chief wild. Parts spoilage was piling up—the front office was screaming its head off about zooming assembly costs.

What could be done? Fortunately, the P.A. knew the answer. "Bargain" fasteners bought at the urging of the cost accountant were causing the trouble. Solution—the P.A. called his local P-K distributor and placed a rush order for P-K® Self-tapping Screws. Screw failures stopped overnight. No more broken screw heads

. . . no more stripped threads. Assembly costs dropped and production shot way up. *All because the P.A. knew his business.*

He knew the cost of a screw is just a fraction of the cost of using that screw in production. And because P-K screws offer consistently high quality and dependable uniformity, *they cost far less to use.* That's why more Purchasing Agents specify P-K Self-tapping Screws. They know . . . "if it's P-K, it's O.K."

PARKER-KALON DIVISION, General American Transportation Corporation
Manufacturers of Self-tapping Screws, Socket Screws, Screwnails, Masonry Nails, Wing Nuts and Thumb Screws

PARKER-KALON® fasteners

Sold Everywhere Through Leading Industrial Distributors
Factory: Clifton, New Jersey—Warehouses: Chicago, Illinois—Los Angeles, California

For More Information Circle No. 298 on Inquiry Card—Page 17



**KEARFOTT COMPONENTS
INCLUDE:**

Gyros, Servo Motors, Synchros, Servo and Magnetic Amplifiers, Tachometer Generators, Hermetic Rotary Seals, Aircraft Navigational Systems, and other high accuracy mechanical, electrical and electronic components.

KEARFOTT COMPANY, INC., LITTLE FALLS, N.J.

Sales and Engineering Offices: 1378 Main Avenue, Clifton, N.J.
Midwest Office: 188 W. Randolph Street, Chicago, Ill. South Central Office: 6115 Denton Drive, Dallas, Texas
West Coast Office: 253 N. Vinedo Avenue, Pasadena, Calif.

For More Information Circle No. 299 on Inquiry Card—Page 17

NEW KEARFOTT COMPONENTS

**FOR LIGHT, MORE RELIABLE
SERVO SYSTEMS**

SERVO MOTORS

Standard Kearfott servo motors and servo motor-generator combinations are now available for operation with transistorized amplifiers. These units feature center tapped control phase windings rated 40 volts in series and 20 volts in parallel. Fixed phase excitation to size 10 units is 26 volts 400 cps and to size 11, 15 and 18 motors 115 volts 400 cps.

SUMMARY OF CHARACTERISTICS

Size	Stall Torque	No Load Speed	Watts Phase	Weight
10	.28 oz. in.	6500 RPM	3.1	1.5 oz.
11	.63 oz. in.	6700 RPM	3.5	4.5 oz.
15	1.53 oz. in.	5300 RPM	6	7.30 oz.
18	2.4 oz. in.	5300 RPM	9	12.2 oz.

AMPLIFIERS

A new transistorized servo amplifier suitable for driving size 10 and 11 servo motors is also available. This amplifier provides a 40 volt, 3 watt output. Designed to meet the requirements of MIL-E-5400 it is rated for operation over the ambient temperature range of -54°C to $+71^{\circ}\text{C}$. A servo type base and a cable with an SM11-20H connector is provided. Dimensions 1 42/64" dia. x 3 25/32" high, weight 8 ozs.

Write Today For Descriptive Technical Data



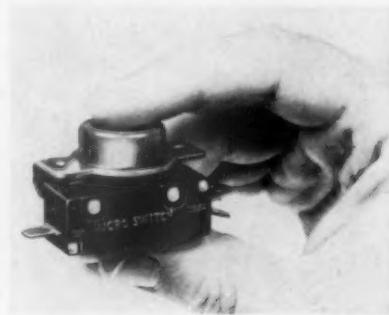
Aluminum Hand Truck



A lightweight truck, constructed with a tubular aluminum frame, 7" long aluminum plate nose and safety loop type handle, has been designed for maneuverability and ease of handling. All its parts are replaceable and, as assembly is of bolted character, repair or replacement of component parts are inexpensive. It is available with roller bearing 6" x 2" (300 lb capacity) or ball bearing 8" x 1 3/4" (200 lb capacity) semi-pneumatic rubber tired wheels for in- or outdoor use. Stair glides are optional. It is made by Nutting Truck & Caster Co., Faribault, Minn.

Circle No. 110 on Inquiry Card—Page 17

Pushbutton Switch Offers Variety of Uses



A pre-assembled, ready-to-install pushbutton switch has been developed by Micro Switch, Freeport, Ill., for use in such applications as computers, vending

(Please turn to page 232)

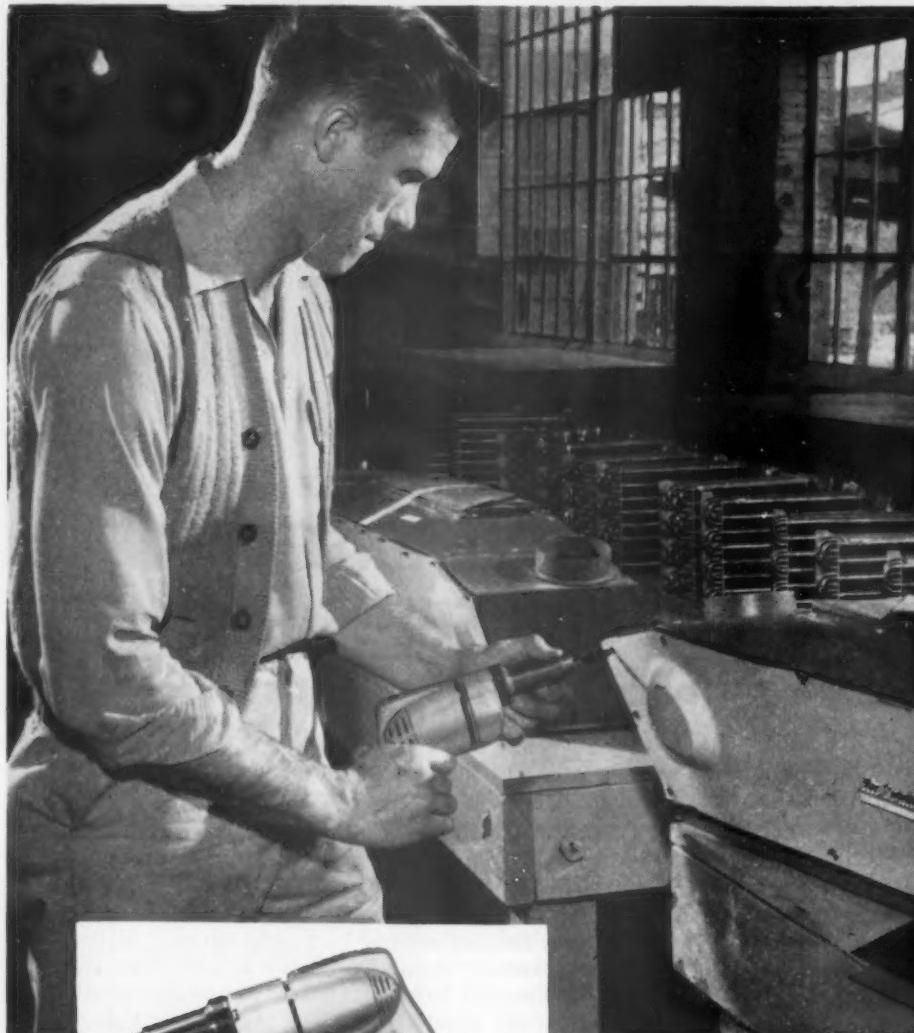
"We Fill the Orders 10 Times Faster with SKIL Power Drivers! ...and turn out better work than ever before!"

says Bill Robinson,
Foreman, Frigikar Corporation,
Dallas, Texas

"Our output of auto air conditioners increased 10 times when we switched from hand-driving methods to SKIL Power Drivers," says Robinson. "Besides, our product now has

neater, tighter, more uniform fastenings. We keep six SKIL Drivers working hard every day . . . yet they keep going without a letup or breakdown. And they all paid for themselves in the very first week!"

Let lightweight, powerful SKIL Drivers boost output, save time and labor for you. Sixteen heavy-duty models for all types of industrial applications and custom jobs.

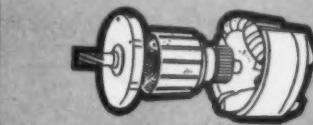


**Model 132 Driver
(Adjustable Clutch)**

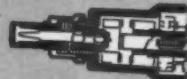
Ideal for production work on fastenings in metal. Capacity: $\frac{1}{4}$ " machine screws, No. 12 wood and self-tapping screws. Trigger-switch; no-load speed, 750 r.p.m.; optional speeds, 500, 1000, 1500 r.p.m. Only $3\frac{1}{4}$ lbs.

FREE!

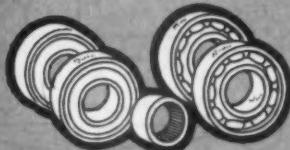
Mail coupon for demonstration and free trial! See how you can improve performance with finest-quality SKIL Drivers!



• **Powerful!** Statically and dynamically balanced motor is quiet, vibrationless. Plenty of reserve power for sure fastening.



• **Versatile!** Several speeds for particular fastening uses. Positive or adjustable clutch; reversing models available.



• **Long-lasting!** Highest-quality ball and needle roller bearings. Die-cast housings of tough aluminum alloy.



• **Easy-handling!** Comfortable hand grips to fit any job. Pistol-grip models. Spade-handle models with removable side handle, and suspension types.



Made only by SKIL Corporation, formerly SKILSAW, Inc.
Factory Branches in ALL Leading Cities

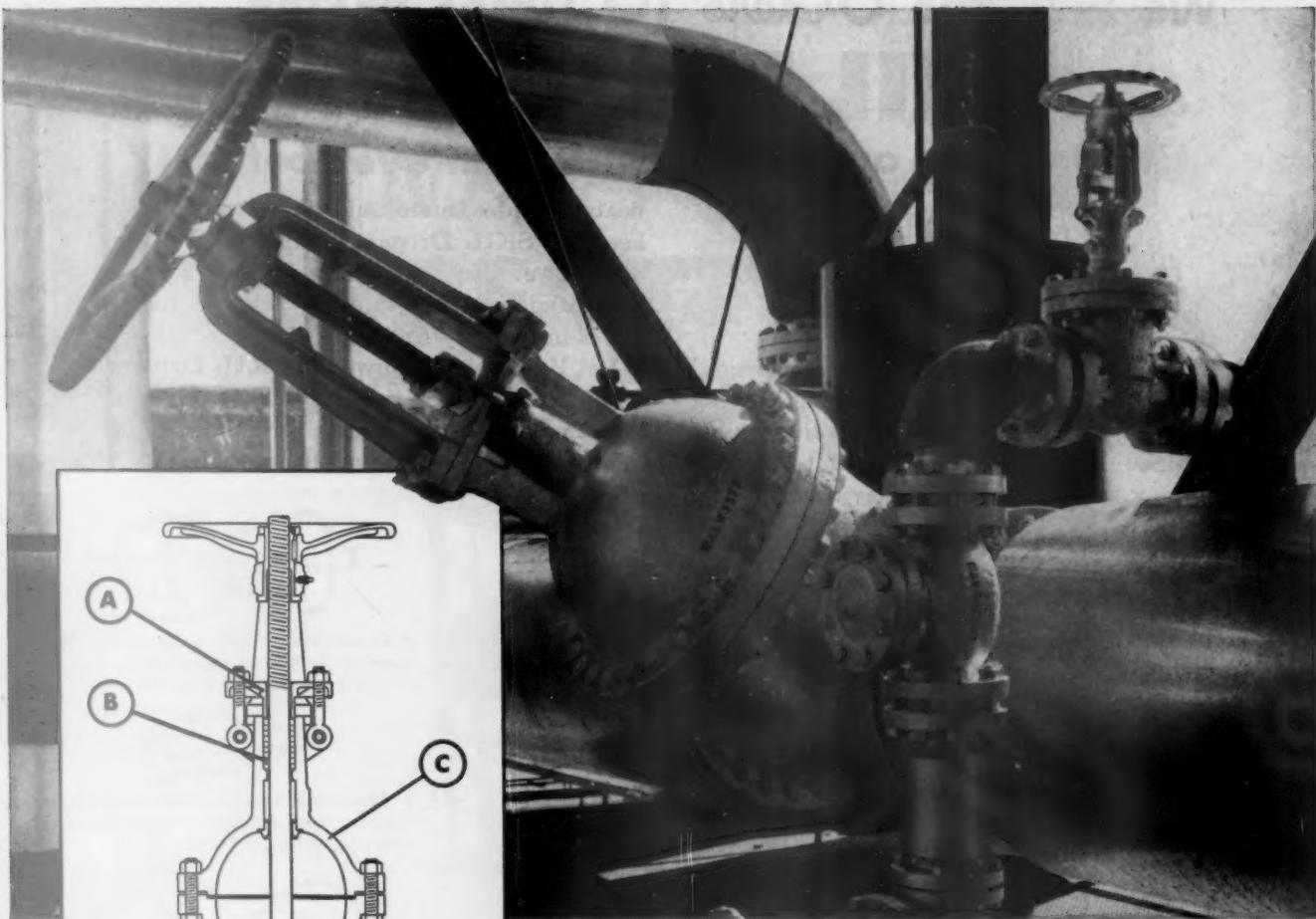
SKIL Corporation, Dept. P-106
5033 Elston Avenue, Chicago 30, Illinois
In Canada: 3601 Dundas St. West, Toronto 9, Ontario

- I would like a demonstration and free trial.
 Please send literature on SKIL Drivers.

Name _____

Address _____

City _____ Zone _____ State _____



**Walworth Series 150 and 300
CAST STEEL GATE VALVES
OFFER YOU THESE FEATURES
for 'round-the-plant service'**

(A) GLANDS: Clearances between the gland and stuffing box, and gland and stem, are such that the stem cannot be scored even if the gland is pulled down unevenly.

(B) DEEP STUFFING BOXES: More than adequate in all sizes (2" to 24") to assure tightness and maximum packing life.

(C) BONNETS AND BODIES: Engineered to exceed the requirements of all applicable codes and standards. They are tough, durable, dependable.

(D) INTEGRAL GUIDE RIB FACES IN BODY: Machined to insure accurate centering of the gate.

(E) STURDY SEAT RINGS: Bottom-seated so that no

recess exists at the back of the ring to cause turbulence, erosion and pressure drop.

(F) STREAMLINED PORTS: Permit unobstructed flow which results in minimum pressure drop and reduces the possibility of erosion.

Walworth Cast Steel Gate Valves can be furnished with either flanged ends or butt welding ends. Roller bearing yokes are available on the larger sizes. On valves 4 inches and larger, by-passes can be furnished. Walworth Cast Steel Gate, Globe and Check Valves from Series 150 to 2500, are available. For Series 600 and higher, we recommend Walworth Pressure Seal Cast Steel Valves. See your Walworth Distributor or write to Walworth for complete information.

WALWORTH

60 East 42nd Street, New York 17, New York

SUBSIDIARIES:	ALLOY STEEL PRODUCTS CO.	CONOFLOW CORPORATION	M & H VALVE & FITTINGS CO.
SW	SOUTHWEST FABRICATING & WELDING CO., INC.	WALWORTH COMPANY OF CANADA, LTD.	

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For More Information Circle No. 302 on Inquiry Card—Page 17→
PURCHASING



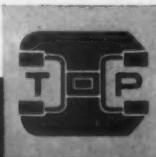
**These will cut your
Fixed Gaging Costs**

1. Double-end plain cylindrical plug gage
2. Spline ring gage
3. Plain ring gage
4. Thread ring gage
5. Double-end thread plug gage
6. Reversible thread plug gage
7. Single-end plain cylindrical plug gage
8. Single-end thread plug gage

Taft-Peirce Gages have the Bargain Built Right In!

Here are two exclusive reasons why your best buy is always Taft-Peirce Fixed Gages: precision lapping and Electrolizing. Precision lapping eliminates "hills" and "valleys" which cause rapid wear — makes the gage accurate much longer. Electrolizing deposits an extremely hard, dense, non-magnetic alloy on all gaging surfaces, giving exceptional wear resistance, extremely low coefficient of friction, and high resistance to corrosion. Now you can get fixed gages with a much greater life span . . . and the slightly extra cost actually pays for itself! Ask for the Taft-Peirce Handbook showing the complete line of gages and tool-room specialties noted for that extra money-saving "Life-Value". Call your nearest T-P representative or write: The Taft-Peirce Manufacturing Co., Woonsocket, R. I.

The Taft-Peirce Family — AIR GAGES • PRECISION GAGES
MAGNETIC CHUCKS • TOOL-ROOM SPECIALTIES
GRINDING MACHINES • LAPPLNG MACHINES



TAKE IT TO TAFT-PEIRCE

THE TAFT-PEIRCE MANUFACTURING CO.
WOONSOCKET, R. I.

**T-P Means
TOP**



RIGGED FOR SAFE DIE HANDLING

To handle heavy, expensive die sets with complete safety, this manufacturer uses eight Laughlin Eye Hoist Hooks—two on each corner. The wire rope is positively secured with genuine Crosby* Clips and Laughlin Thimbles protect the rope at the lifting points.

LAUGHLIN HOOKS—drop forged and heat treated—take the risk out of this job. They're precision designed and manufactured from special high quality steel—construction that results in maximum strength and uniformity without excessive weight. Hooks are available to fit rope up to 1½" with capacities up to 20 tons!

TOUGH LAUGHLIN THIMBLES, manufactured from hot rolled steel bars, resist crushing forces. They're offered in sizes to fit all ropes from ⅛" to 2¼".

GENUINE CROSBY CLIPS provide maximum holding power for wire rope from ⅛" to 3" in diameter. In every application where the safety of men or materials must depend upon wire rope rigging, safety engineers specify Crosby Clips! Look for the "Red U-Bolt"**—you'll see it in use everywhere—in every industry!



THE STRONGEST LINK

Wherever a chain link is replaced or connections made, a potential safety hazard exists—unless genuine Laughlin "Missing Links"** are used to do the job! This easily installed split link is essential whenever maximum safety is required. It's as strong as BBB chain! Drop forged "Missing Links" are matched to a perfect fit under tons of pressure. Your Crosby-Laughlin Distributor carries a complete range of sizes from $\frac{3}{16}$ " to $1\frac{1}{8}$ "! Insist on the genuine "Missing Link".

*REGISTERED TRADEMARK

Stocked and sold by leading distributors everywhere

CROSBY-LAUGHLIN Division

American Hoist and Derrick Company

FORT WAYNE 1, INDIANA

For More Information Circle No. 303 on Inquiry Card—Page 17

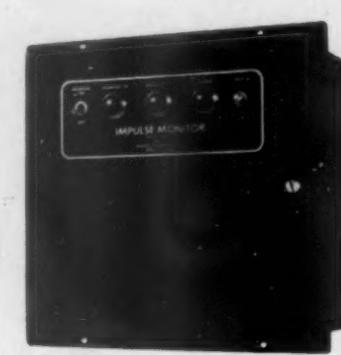
new
products

(Continued from page 228)

machines and industrial machinery. Designated 71PB2, its use, according to the maker, will enable designers of equipment to lower manufacturing costs. Tapped holes allow the switch to be mounted on panels by two No. 6 screws on 1½" centers. Spade-type, quick-connect terminals permit fast, simple wiring. Electrical rating of switch is 15 amp, 125 or 250 v a-c; 1 hp 250 v a-c; ½ hp 125 v a-c.

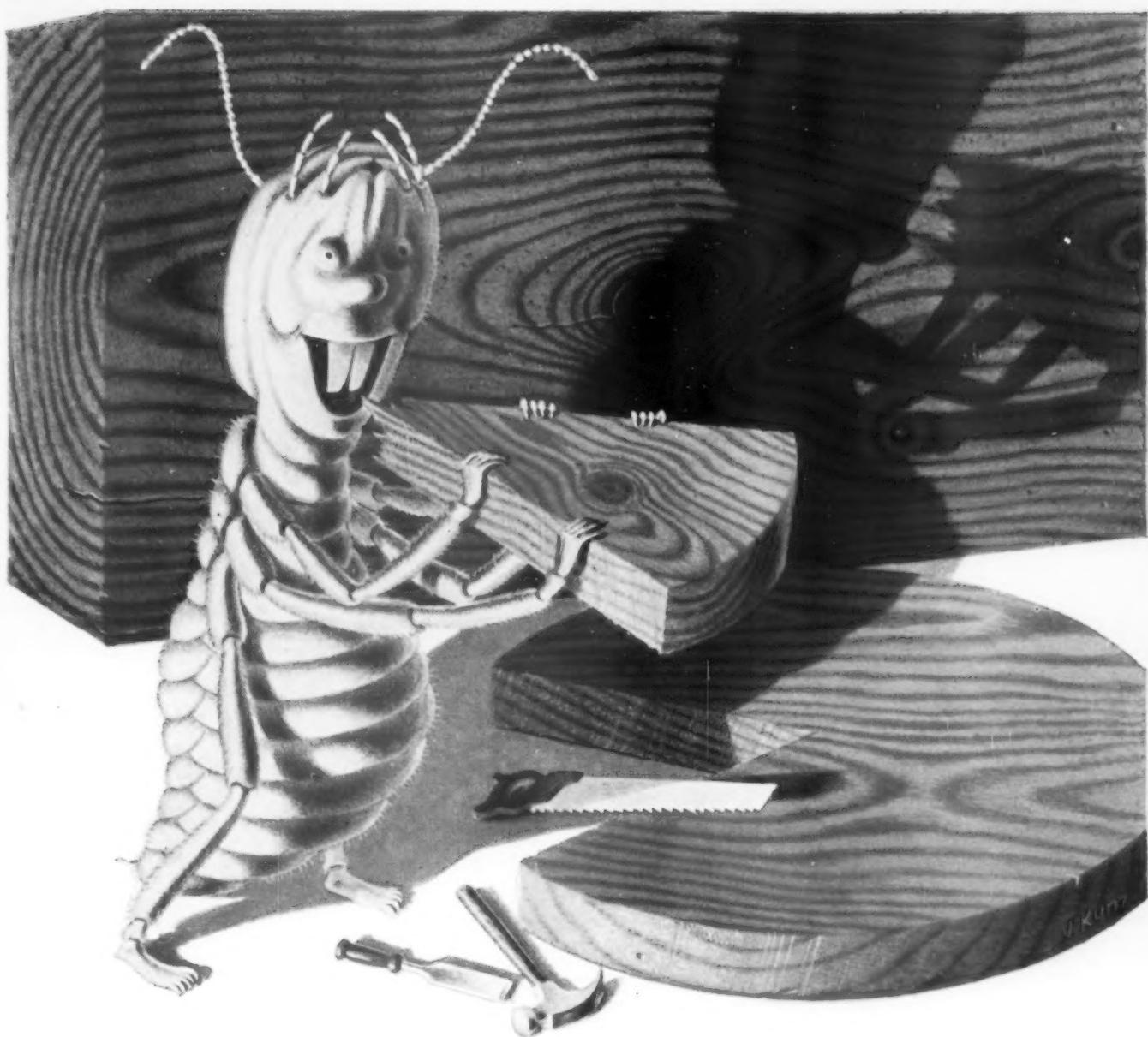
Circle No. 111 on Inquiry Card—Page 17

Heating Process Shutoff Alarm Monitors Signal



The first safety shutoff and alarm for automatically controlled processes which requires no sensing element or electronic circuitry is announced by Damol Corp., 541 Land Title Bldg., Philadelphia 10, Pa. The device provides a complete, safe shutdown of the process and sounds an alarm in the event of controller failure in the "on" period; and an alarm in the event of abnormal "off" period or fusing of the power contactor. Although the models are primarily designed for heat treating furnaces most other processes involving heat, pressure or flow, where control system is an on-off, 2-position or pulsing type.

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For More Information Circle No. 304
on Inquiry Card—Page 17→
PURCHASING



Why Mr. T..... loves timber pie

LET Mr. Termite set tooth to the wood in your house and you'll soon be faced with expensive repairs. He has a taste for timber and *his ability to live on it* is unique among insects.

Now, however, Shell Chemical curtails Mr. T's appetite with a potent insecticide, dieldrin. When applied to the soil around and under old and new houses, dieldrin creates an impregnable bar-

rier to termites... and the houses remain termite-proof for years. No termite can cross this "no-bug-land" to gnaw at your home.

The development of dieldrin for control of termites is another example of how Shell Chemical helps the homeowner protect his investment against insects.

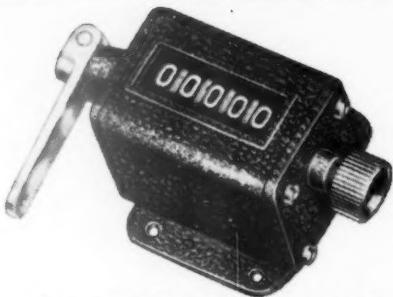
Shell Chemical Corporation

Chemical Partner of Industry and Agriculture

NEW YORK



THE
A **B** **C**
 OF
1|2|3



MECHANICAL COUNTING

Small Resets count strokes, turns, or pieces . . . are used by thousands for moderate duty in parts inspection, quality control, conveyors, machine tools, light presses, etc.



HAND COUNTING

Where objects or units cannot be counted electrically or mechanically, hand-operated counters like this Hand Tally do the job. For instance, quick spot checks of production or performance, traffic count, inventory, etc. Fits palm of hand, counts one for each pressure of thumb lever, resets to zero by turning knob.



ELECTRICAL COUNTING

These remote-indicating counters bring your production machines as close as your office wall. AC or DC, they can be connected in series with any simple switch, and will transmit production figures *instantly* over any distance. May be panel-mounted in groups.



CONTROLLING

Set it for the exact number of turns, pieces, or operations required . . . and this Predetermining Counter will control the run *exactly* . . . preventing over-runs and shortages. When the predetermined number is reached, counter will light a light, ring a bell, or actuate a stop-motion.

IN SUM: If it can be counted or controlled . . . count on Veeder-Root to do it. Get in touch with your Industrial Supply Distributor for standard counters for application to your production machines and processes. And get in touch with Veeder-Root for counters to be built into original equipment. **Veeder-Root Inc., Hartford 2, Connecticut.**

Insist on Standard
VEEDER-ROOT
COUNTERS
 from your Industrial
 Supply Distributor



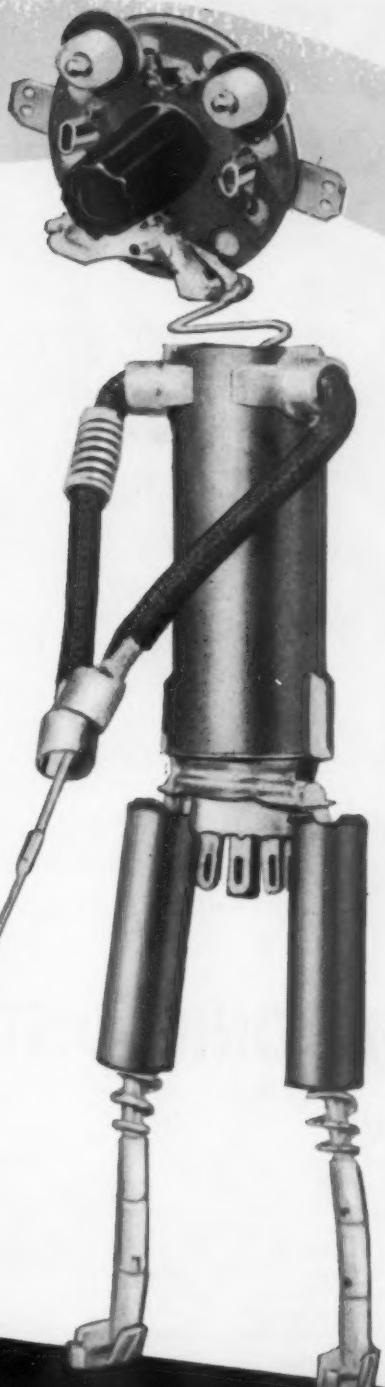
For More Information Circle No. 305 on Inquiry Card—Page 17

"FOUR!"

Four? That's right. Look closely, you'll notice this little golfer represents all four of the services available to designers from Sylvania's Parts Division: (1) Custom-molded plastics; (2) Plated, clad and alloy wire; (3) Metal stampings; (4) Electronic components.

All of these parts were supplied in quantity to just one major manufacturer during the past year. On many of these items, Sylvania representatives were called in for consultation before parts designs were finalized. Suggestions from an experienced parts producer can often reduce costs, increase efficiency, and assure more uniform production in high volume items.

Manufacturers who insist on the highest degree of quality and efficiency can find Sylvania's 4-way service extremely helpful. For complete details write for the "Portfolio of 4-way Service to Designers." Address Dept. K58S.



SYLVANIA

PARTS DIVISION

Sylvania Electric Products Inc., Parts Division, Warren, Pennsylvania

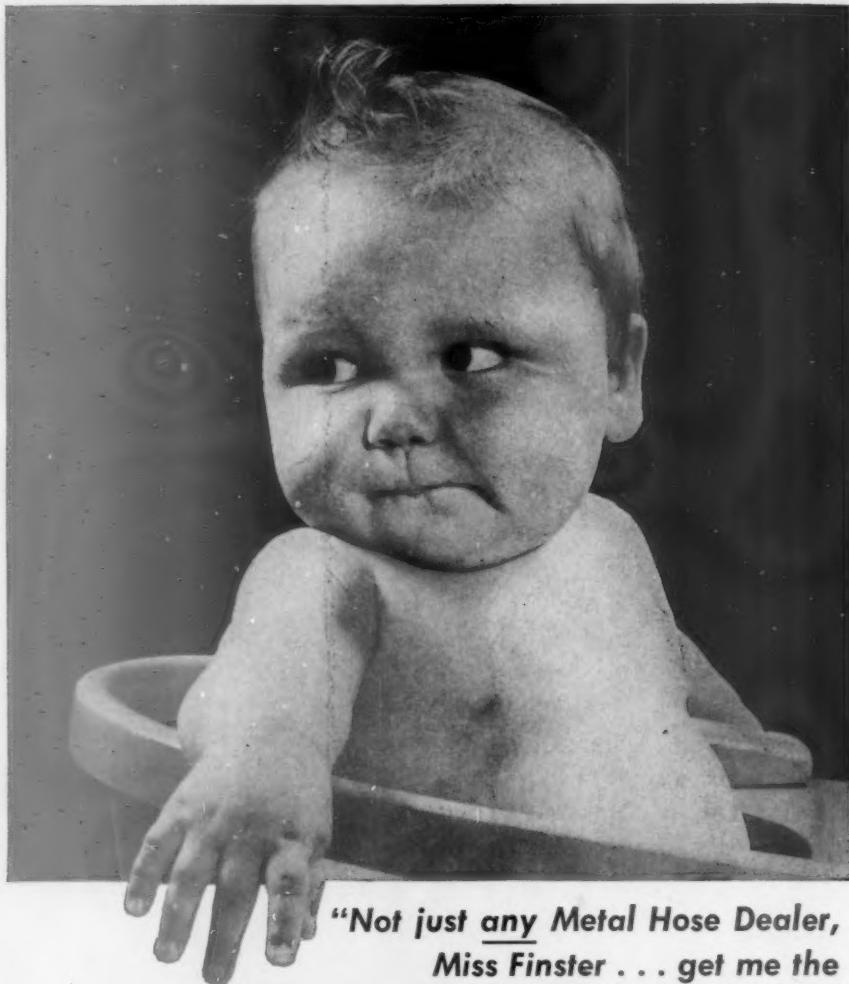
SPECIAL
WIRE

METAL
STAMPINGS

MOLDED
PLASTIC

ELECTRONIC
COMPONENTS

4-way
service
from
one source



**"Not just any Metal Hose Dealer,
Miss Finster . . . get me the
FLEXONICS DISTRIBUTOR!"**

Don't be too harsh with Miss Finster—she probably thinks one flexible metal hose is just like any other.

However, to the man whose business is buying, other factors must be involved in the selection of one product over another—when outwardly they all look much the same.

Where flexible metal hose products are concerned Flexonics Corporation has over 54 years of manufacturing experience . . . we produce in volume with modern facilities . . . we maintain continuous research and quality control . . . to make Flexonics products the finest in the field at the lowest price consistent with top quality. And to assure complete satisfaction, Flexonics Corporation guarantees the material and workmanship of every piece of Flexon metal hose.

To assure prompt delivery, Flexonics maintains a nationwide network of distributors, backed by strategically located warehouse and factory stocks. Here is the most complete line of flexible metal hose products offered by a single manufacturer.

We believe you will realize a savings of time, trouble and dollars when you buy Flexon metal hose—but, the proof of the product is in its use. Next time, tell Miss Finster "Get me the Flexonics Distributor."

Catalog 152 gives full data on all types of Flexon hose.
Ask your distributor for a copy or write direct.



G-36

Flexonics Corporation
CHICAGO METAL HOSE
DIVISION

1316 S. THIRD AVENUE, MAYWOOD, ILLINOIS

FORMERLY CHICAGO METAL HOSE CORPORATION

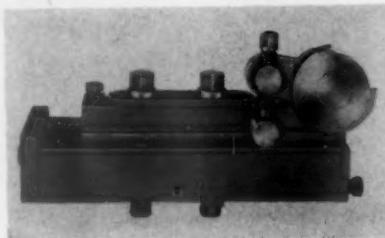
FLEXON[®]
QUALITY
proved in service and
backed by over 54 years
manufacturing
experience

Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.
In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

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new
products

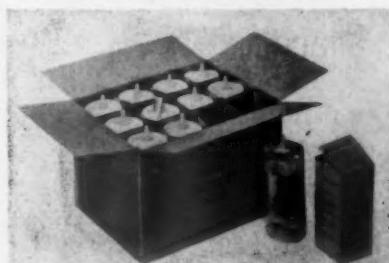
Cross Slide Tool Holder



A versatile tool holder for multi-spindle automatics, made by R and L Tools, 1825 Bristol St., Philadelphia 40, Pa., can be used on either front or rear cross slide of machines. Made for circular tools, the holder operates within the capacity of the units.

Circle No. 113 on Inquiry Card—Page 17

Electrolyte For Dry-Charged Batteries



Globe Union, Inc., 900 E. Keefe Ave., Milwaukee 1, Wis., is packaging electrolyte suitable for any dry-charged battery, in polyethylene bottles, twelve to a carton. The bottles are unbreakable, eliminating risk of leakage present when the acid is shipped in glass containers. Each bottle contains 45 ounces of electrolyte with a specific gravity of $1.270 \pm .5$. Shipping costs are lower both because the polyethylene bottles are disposable and eliminate return costs of returning them for refilling and because a case of acid in the plastic bottles weighs $24\frac{1}{2}$ lb less than when shipped in glass containers.

Circle No. 114 on Inquiry Card—Page 17

19 tons of stainless . . .

all for one customer . . .

all for atomic power . . .

... and all from

CARLSON



Type 304 stainless plates abrasive cut to size and ultra-sonic tested. These plates total 19 tons and range from 1 to 6 inches thick.



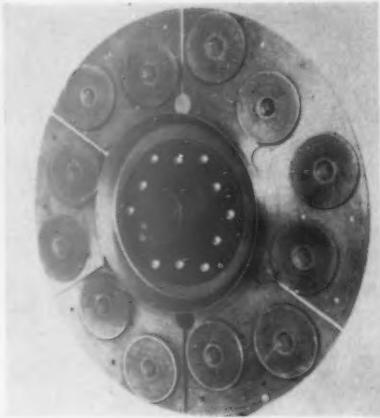
CARLSON, INC. *Stainless Steels Exclusively*

THORNDALE • PENNSYLVANIA

District Sales Offices in Principal Cities

new products

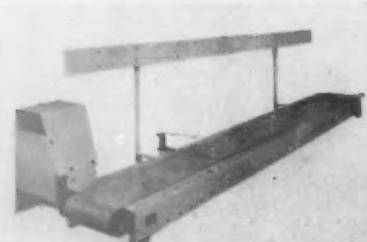
Ceramic Linings Up Clutch Facing Life Fivefold



Clutch plates are now being furnished with ceramic type linings instead of conventional organic linings, once standard for off-highway vehicles. In addition to reducing maintenance downtime, the new facings are resistant to heat and frictional wear, resulting in five times the life of ordinary facings. The ceramic material is compressed within shallow metal cups or "buttons," with six such buttons comprising the facing on each side of the plate for clutches up to 14" and twelve for larger sized clutches. Lipe-Rollway Corp., 806 Emerson Ave., Syracuse, N.Y., manufacture the clutch plates.

Circle No. 115 on Inquiry Card—Page 17

Bag Conveyor Telescopes To Fit Uses

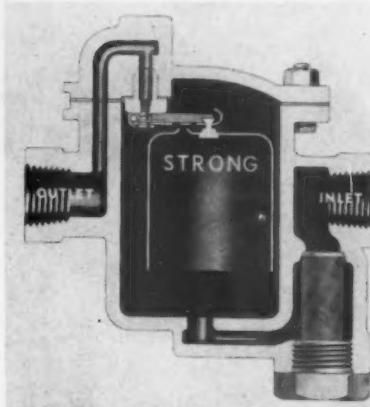


A versatile flat belt bag conveyor features variable belt speeds and an adjustable frame

to meet a variety of conveying requirements. The frame of the conveyor is telescopic to provide a choice of conveying lengths. It is constructed in two parts: the rear half can be telescoped over the front half for a minimum conveying length of 7 ft. Full length, with both sections fully extended, is 12 ft. A 3/4 hp non-gear head motor is available for belt speeds from 25 to 42 fpm; a 1 hp motor can be supplied for belt speeds from 40 to 60 fpm. If desired, the makers, Richardson Scale Co., Clifton, N.J., will provide a bag stop limit switch to halt bag at a bag sewing machine.

Circle No. 116 on Inquiry Card—Page 17

Steam Trap With Built-In Strainer



A moderate-priced steam trap has a built-in stainless strainer which prevents clogging and reduces maintenance time. Small in size and weight, it has bucket action for efficient operation under all load conditions with durable semi-steel body and all working parts of stainless steel. The strainer is located on inlet side to catch foreign matter before it has a chance to clog the trap. The strainer screen is installed in a vertical position and may be easily removed for cleaning. Trap is suitable for working pressures up to 150 psig. Inlet and outlet hole sizes are 1/2" and 3/4". It is made by Strong, Carlisle & Hammond, Cleveland 13, Ohio.

Circle No. 117 on Inquiry Card—Page 17

**PLEASE USE
INQUIRY CARD
PAGE 17**

REYNOLDS DISTRIBUTORS

ALABAMA Southern States Iron Roofing Co., Birmingham

ARIZONA Comstock Steel Co., Phoenix

CALIFORNIA

Braico Metals, Inc., *Los Angeles
Clingen & Fortier, Inc., Fresno, *Los Angeles,
Sacramento, San Francisco and Vernon
Perry Kilby, Inc., (Tubing & Pipe) *Los Angeles
Pioneer Aluminum Supply Co., *Los Angeles
Turner Metal Supply Co., (Wire, Rod, Bar)
*Huntington Park

COLORADO

M. L. Foss, Inc., *Denver

CONNECTICUT

American Steel & Aluminum Corp., *Hartford
Peter A. Frasse & Co., Hartford
Scovill Mfg. Co., (Wire, Rod, Bar) *Waterbury

FLORIDA

Southern States Iron Roofing Co., Jacksonville, Miami,
GEORGIA Southern States Iron Roofing Co., * Atlanta and Savannah

ILLINOIS

Aluminum Distributors, Inc., *Chicago
J. G. Braun Co., (Architectural only) *Chicago
Joseph T. Ryerson & Son, Inc., *Chicago
Scovill Mfg. Co., (Wire, Rod, Bar) Chicago
Benjamin Wolff & Co., *Chicago

INDIANA

W. J. Holliday & Co., *Indianapolis
Kasle Steel Corporation, Elkhart
United States Aluminum Co., (Architectural only)
*South Bend

KANSAS

Industrial Metals, Inc., Wichita

KENTUCKY

Cobb Sales Co., (Wire, Rod, Bar) *Louisville
Southern States Iron Roofing Co., Louisville

MARYLAND

Clendenin Bros., Inc., *Baltimore

MASSACHUSETTS

Jos. T. Ryerson & Son, Inc., Boston

MICHIGAN

Kasle Steel Corporation, *Detroit and Grand Rapids
McDonnell Bros., Inc., (Architectural only) *Detroit
Meier Brass & Aluminum Co., *Detroit

MINNESOTA

MacArthur Co., (Architectural only), *St. Paul
Vincent Brass & Aluminum Co., *Minneapolis

MISSOURI

Industrial Metals, Inc., *Kansas City and St. Louis

NEW JERSEY

Edgcomb Steel and Aluminum Corp., *Hillside
Peter A. Frasse & Co., Lyndhurst
Mapes & Sprowl Steel Co., *Union
Ray Miller, Inc., (Tubing & Pipe) *Newark

NEW YORK

J. G. Braun Co., (Architectural only) New York
Edgcomb Steel and Aluminum Corp., Hillside, N. J.
Peter A. Frasse & Co., Buffalo, *New York, Rochester
Syracuse
Mapes & Sprowl Steel Co., Union, N. J.
Ontario Metal Supply, Inc., (Wire, Rod, Bar)
*Rochester

NORTH CAROLINA

Southern States Iron Roofing Co., Raleigh

OHIO

Kasle Steel Corporation, Cleveland
Mutual Manufacturing & Supply Co., *Cincinnati
Vorys Brothers, Inc., *Columbus

OREGON

Clingen & Fortier, Inc., Portland

PENNSYLVANIA

Athos Steel Service Co., *Philadelphia
Bethlehem Aluminum, Inc. (Architectural only),
Bethlehem

Peter A. Frasse & Co., Philadelphia

Merchant & Evans Co., *Philadelphia

Penna. Industrial Supplies Co., Inc., *Pittsburgh

RHODE ISLAND

The Congdon & Carpenter Co., *Providence

SOUTH CAROLINA

Southern States Iron Roofing Co., Columbia

TENNESSEE

Southern States Iron Roofing Co., Memphis and Nashville

TEXAS

Allied Metals Inc., *Houston
Moncrief-Lenoir Mfg. Co., Dallas, Harrington,
*Houston, Lubbock, San Antonio and Temple
Vinson Steel and Aluminum Co., *Dallas and Houston

UTAH

Salt Lake Hardware Co., *Salt Lake City

VIRGINIA

Southern States Iron Roofing Co., Richmond

WASHINGTON

Clingen & Fortier, Inc., Seattle

WISCONSIN

Joseph T. Ryerson & Son, Inc., Milwaukee
Wisconsin Bridge & Iron Co., (Architectural only),
*Milwaukee

Benjamin Wolff & Co., Milwaukee

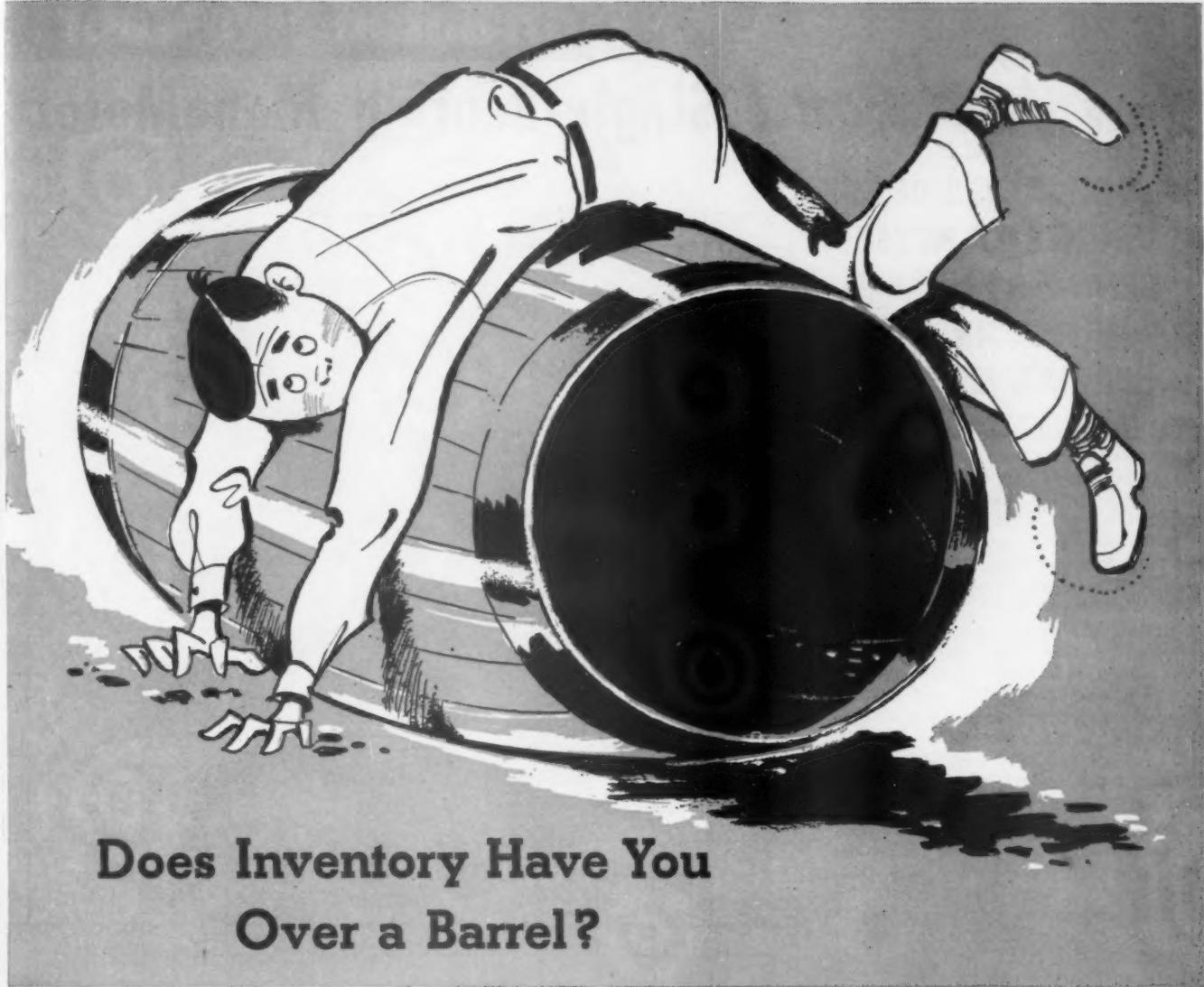
TERRITORY HAWAII

American Factors, Ltd., *Honolulu

*Indicates main office

Look Under "Aluminum" in Your Classified Telephone Directory

6-7-58



Does Inventory Have You Over a Barrel?

Call your REYNOLDS DISTRIBUTOR
for Complete Aluminum Service

The Finest Products
Made with Aluminum

are made with

REYNOLDS  **ALUMINUM**

E. REYNOLDS METALS COMPANY

Watch for Reynolds New Program, "Circus Boy", Sundays on NBC-TV

Don't let emergency requirements for aluminum mill products put you on a spot. You can be ready for any unforeseen need when you know and work with your Reynolds Distributor. What's more you can carry lighter and more realistic inventories, avoid tying up capital and valuable space. Your Reynolds Distributor is near you... his business is built on service. Rely on him for complete aluminum service.



Call your nearest Reynolds Distributor, listed in the adjoining column, for his stock list and assistance on your problems.

For More Information Circle No. 309 on Inquiry Card—Page 17

Warranted Two Years

New Redmond Single-Bearing MonoMotor

**INCORPORATES DESIGN
PRINCIPLES NEVER
BEFORE AVAILABLE
IN FHP SINGLE-
BEARING MOTORS**

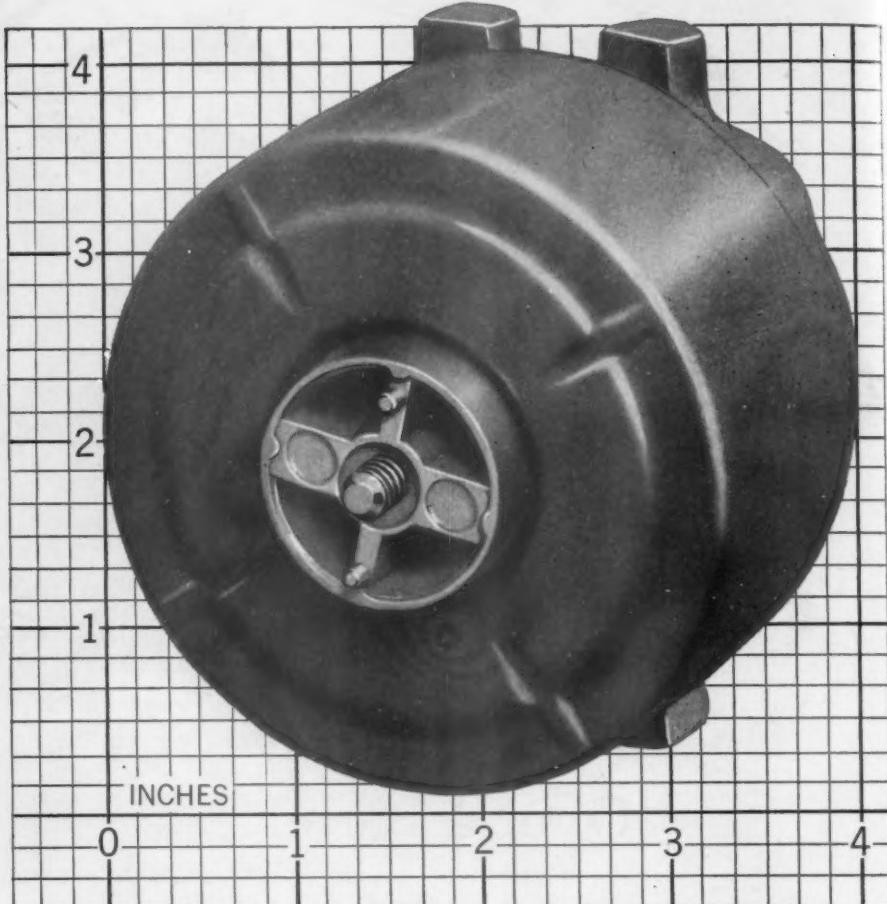
The Tri-Flux design, described and illustrated at the bottom of this page, is available only in Redmond small-diameter motors. This design adds a third area of magnetic flux which greatly increases the efficiency and starting and running torques of the AM-4 over conventional old style single-bearing motors.

Redmond's Uni - Cast construction allows the precision manufacturing that results in a motor that is smooth-running and quiet and can be depended on to give years of service-free performance. Exact bearing alignment, uniform air gap, and the elimination of magnetic wedges assure long life and whisper-quiet operation.

The AM-4 is guaranteed not to leak oil in all-angle use or in shipment. The new positive oiling system provides an extra large oil reservoir for lifetime lubrication. Positive oiling is achieved through the forced recirculation of the lubricant, which is completely suspended and uniformly distributed in pure wool and nylon wicks.

Made of a durable, lightweight metal, this new single-bearing motor is considerably lighter than conventional old style models.

Designed for all-position mounting—vertical shaft up, shaft down, or any angle—and interchangeable to accommodate all standard brackets and special mounts, the AM-4 is adaptable to a wide variety of applications.



Designed Specifically for the Refrigeration and Air Conditioning Industries and Adaptable for a Wide Variety of Applications

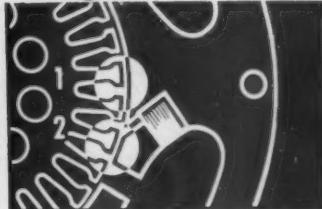
The AM-4 is a 4-pole motor, 1550 r.p.m., 115 volts, 60 cycles. It is available in odd voltages and frequencies, and is rated at 1½, 4, 6, 9, 12, and 16 watts.

¼" external shaft diameter is projected in bearing to 5/16" for added strength. There are six lead outlets.

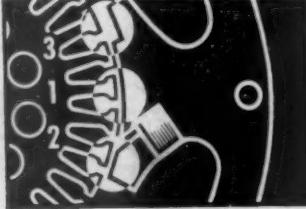
How Tri-Flux Design Improves Performance



The salient pole single phase induction motor has only one flux path—indicated by the white circle—between the field and the rotor. The motor is not self-starting—for commercial value a starting mechanism must be added.



The second white circle indicates the flux path added by wrapping a shading coil around the trailing pole tip. Power and uni-directional action are increased in this shaded pole induction motor, and it is now self-starting. This motor is now practical at low cost, and is used for applications requiring limited starting torque.



Note that a third flux path has been added at the leading pole tip. This was accomplished by Redmond's Tri-Flux design, whereby a "reluctance notch," which can be seen in the third white circle, is put in the leading pole tip. Efficiency and starting and running torques are greatly increased. New applications are opened to these improved, low-cost motors.

for Customer Satisfaction

Features All-Angle Operation

STANDARD AM-4 RATINGS

**Totally Enclosed
Any Position Mounting**

115V • 60 CYCLES • 4-POLE • 1550 RPM • ALL-ANGLE OPERATION

Model Number	Watts Output	AMPS	A ± 3/4	Hi Impedance Protected	Duty		Weight Lbs.-Oz.	Notes
					Fan	Mechanical		
*AM-4000J	1.5	.30	2 45/64	YES	YES	YES	2-2	1. All standard model numbers are clockwise rotation facing shaft end of motor. Opposite rotation supplied on request. 2. All motors comply with U. L. and C. S. A. electrical design standards.
*AM-4001J	4	.44	2 45/64	YES	YES	NO	2-2	
*AM-4200J	6	.46	2 61/64	YES	YES	YES	2-9	
*AM-4300J	9	.58	3 13/64	YES	YES	NO	3-1	
AM-4400A	12	.72	3 29/64	YES	YES	NO	3-9	
°AM-4401A	16	1.03	3 29/64	NO	YES	NO	3-9	

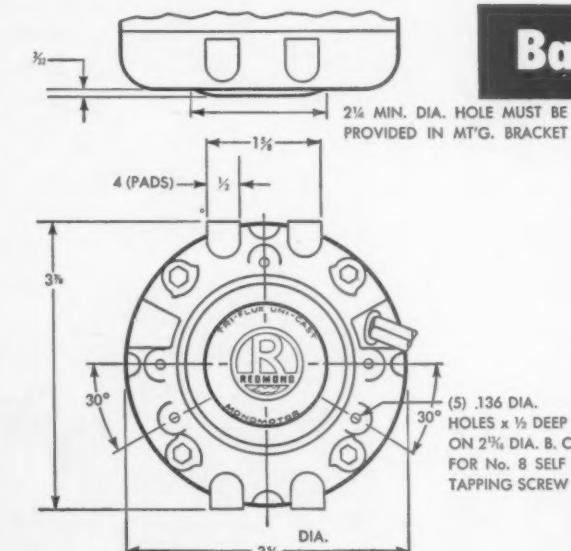
*May be operated on 50 cycles at 1300 RPM—Fan Duty—Hi-Impedance protected.

[°]Thermal protected.

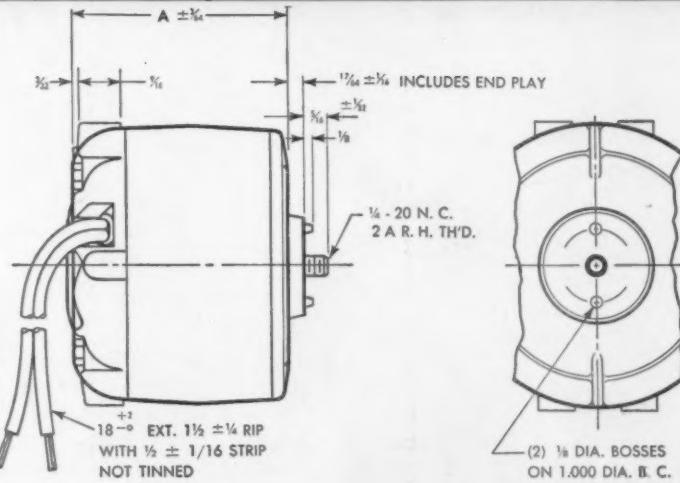
OPTIONAL FEATURES

Motors are supplied standard as shown. Also available are other features of special stud extensions, sleeving over leads, other lead material, feed-thru switches, plugs, terminals, conduit clamps and special lubricant as required for exceedingly high and low ambient operation.

Other performance ratings for various voltages, frequencies and loads can be supplied for your product. Our sales engineers will welcome the opportunity to assist you in developing the most practical motor for your applications.



Basic AM-4 Dimension Diagram



Send for Complete Performance Data

Write the Redmond Co., Owosso, Michigan, for the "AM-4 Bulletin." At your request we will have a sales engineer call.



The Standard of Dependability

Redmond

COMPANY Inc.
OWOSO, MICHIGAN



THE **BIG** NAME IN SMALL MOTORS

OCTOBER 1956

For More Information Circle No. 310 on Inquiry Card—Page 17

Norgren OIL-FOG LUBRICATORS



3 OZ. OIL CAPACITY
1/4" pipe size
Permanent, metal oil
reservoir
Model 399-2



1/2 PT. OIL CAPACITY
1/4" and 3/8" pipe sizes
Replaceable, trans-
parent oil reservoir
Reversible. Series 0-40.

1/2 PT. OIL CAPACITY
1/4" pipe size
Permanent, metal oil
reservoir
Model 399LB-2



1/2 PT. OIL CAPACITY
5 pipe sizes, 1/4" to 1"
inclusive
Replaceable, trans-
parent oil reservoir
Reversible
Series 0-41 and 0-42.



1/2 PT. OIL CAPACITY
5 pipe sizes, 1/4" to 1"
inclusive
Replaceable, metal oil
reservoir
Reversible
Series SO-41 and SO-42.



1 QT. OIL CAPACITY
5 pipe sizes,
1/4" to 1"
inclusive
Replaceable,
metal oil
reservoir
Reversible
Series S406.



1 QT. OIL CAPACITY
1 1/4" and 1 1/2" pipe sizes
Permanent, metal oil
reservoir
Series 406.



2 QT. OIL CAPACITY
5 pipe sizes, 1/4" to 1"
inclusive
Permanent, metal oil
reservoir
Series S408, (also 1 1/4" and
1 1/2" pipe sizes —
series 408).

2 GAL. OIL CAPACITY
5 pipe sizes, 1/4" to 1"
inclusive
Replaceable, metal oil
reservoir
Reversible
Series X400 and X402
(Also 1 1/4" and 1 1/2"
pipe sizes —
series X406)



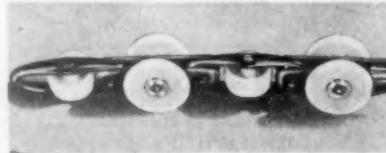
5 GAL. OIL CAPACITY
5 pipe sizes, 1/4" to 1"
inclusive
Replaceable, metal oil
reservoir
Reversible
Series Y400 and Y402
(Also in 1 1/4" and 1 1/2"
pipe sizes — series Y408)



For More Information Circle No. 311 on Inquiry Card—Page 17

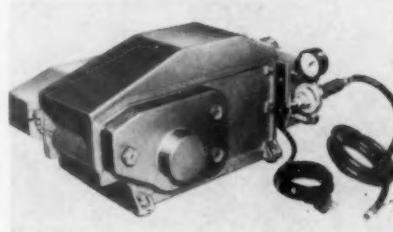
new
products

Overhead Conveyor Wheels



A chain with nylon wheels for materials handling applications is being manufactured by Richards-Wilcox Mfg. Co., 422 W. Third St., Aurora, Ill. These nylon wheels in combination with stainless steel bearings, running fully enclosed on steel tracks, are approximately 80% quieter than steel wheels would be. When moisture is a problem, stainless steel bearings and nylon wheels eliminate bearing corrosion. Because bearings need no lubrication, this nylon wheel chain is ideal where products, in handling operations, could be harmed by oil or grease. Circle No. 118 on Inquiry Card—Page 17

Air-Operated Tape Dispensers



MICRO-FOG is Norgren's latest advancement in aerosol lubrication. For complete information on Oil-Fog and MICRO-FOG Lubrication, call your nearby Norgren Representative listed in your telephone directory — or WRITE FOR CATALOG.



3414 So. Elati St., Englewood, Colorado

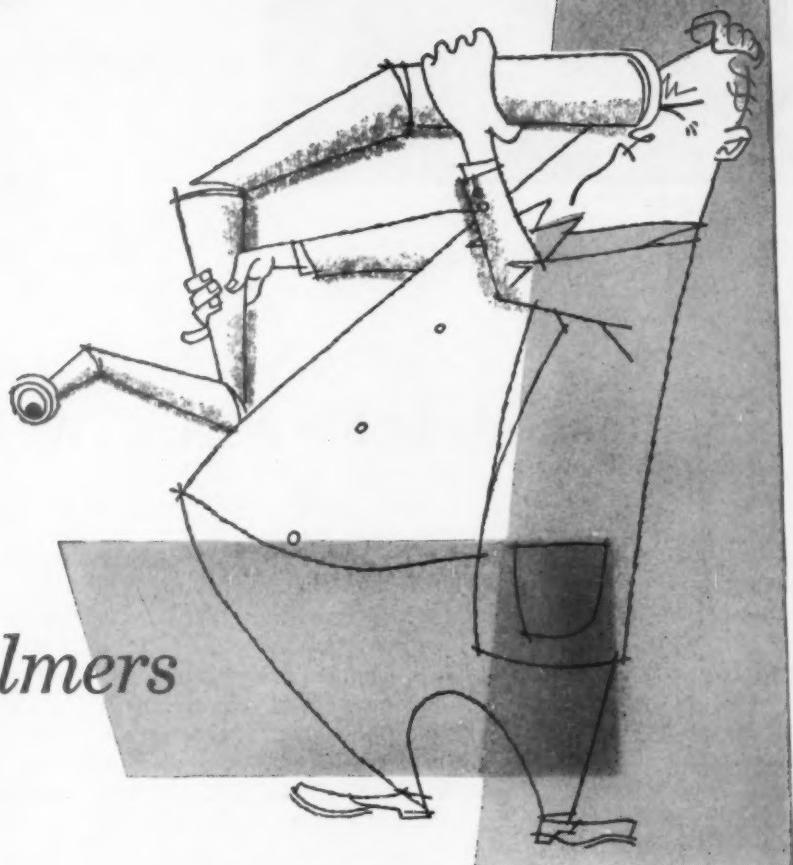
Fully automatic air-operated tape dispensers for industry eliminate all pushbuttons, levers and foot pedals. When operator removes a length of tape, a micro switch automatically sets in motion the next delivery cycle. The dispensers are available from Air Fixtures, Inc., N. Manchester, Ind., for all types of pressure sensitive tapes in widths up to 4", lengths up to 21".

Circle No. 119 on Inquiry Card—Page 17

Mr. Purchasing Man:

searching for the "Better Drive"?

*Look
to
Allis-Chalmers*



MOTORS • CONTROL • DRIVES

When you look to Allis-Chalmers for a "packaged" drive, you get top product quality — plus engineering assistance — in one focus. A-C engineers are ready to help all the way — from initial system design to installation.

To bring more profits into sight, contact your nearby A-C office or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

A-4914

Other Helps
Available
from
Allis-Chalmers

Price Books
Is your A-C book up to date? Let us check it for you.

Inventory Control
There may be locally maintained stocks that can cut your stock.

Standardization
A-C engineers can help cut the number of sizes used.

Certified Service Factory Parts
Factory-approved methods are available in all industrial centers.



ALLIS-CHALMERS

For More Information Circle No. 312 on Inquiry Card—Page 17

OCTOBER, 1956

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association news

Educational Aids for N. A. P. A. Members

EVEN though all phases of our educational program are important, the majority of our members all over the country can only be reached by printed matter in the form of books, pamphlets, magazines, bulletins, etc. I think that a member's or local association's best source on this is our National Association.

This approach to education requires self education, reading and studying individually for the most part. It is less exciting and more difficult to stick with than organized courses which include class work with other students or correspondence courses which require questions and answers. The above facts make it very important that all publications from our national association contain the most interesting, factual and helpful information obtainable. This information should be kept up to date. It has been pretty well established that the future of our association depends primarily on the practical education of our members and our greatest challenge is to get across to the average member just how val-

able the information available from the national association can be to him personally.

The first pamphlet that should be mentioned is "From One P. A. to Another." This pamphlet is used extensively as information for prospective members and it covers organization, policies, administration, objectives, etc., of N.A.P.A.

After a prospect becomes a member he should start improving his education. The revised edition of the pamphlet "Bibliography of Industrial Purchasing" will tell him where to find any information on any purchasing subject. This has been of untold

value to my own purchasing department. Several years ago we made quite a study of purchasing for our company. From this study we mapped out a long range plan. We are not through this program yet. The backbone of this plan was based on information obtained from publications sent out by the national association. I think I can best present the value of just a few of these publications by actual personal experiences.

My company resulted from merging several groups of textile plants in 1946 and it was necessary for us to organize a central

(Please turn to page 246)

N.A.P.A. District Conferences

- District No. 2, November 7 and 8, Fort Worth, Texas
- District No. 6, October 19 and 20, Columbus, Ohio
- District No. 7, October 8 and 9, Louisville, Ky.
- District No. 8, October 24 and 25, Syracuse, N. Y.
- District No. 9, October 16, Hartford, Conn.

N.A.P.A. Executive Committee

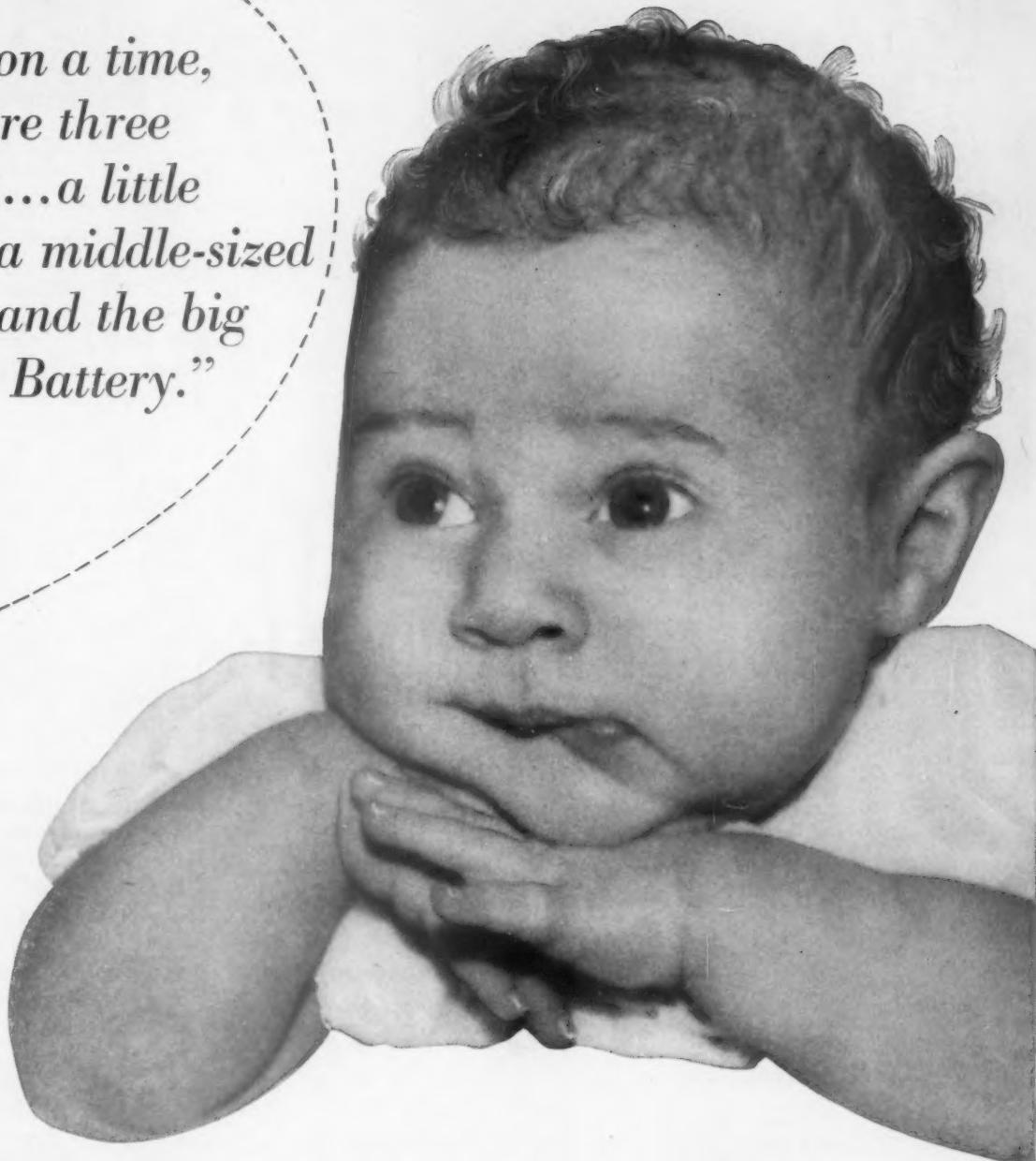
Kansas City, Mo., November 9 and 10

Public Utility Buyers' Group

Brown Hotel, Louisville, Ky., February 3, 4, 5, 1957

A talk made by Paisley Boney to the District 5 Educational Committee of the National Association of Purchasing Agents

*"Once upon a time,
there were three
batteries...a little
battery, a middle-sized
battery, and the big
gould Battery."*



America's Finest!
GOULD
Industrial Truck Batteries

It's no "fairy tale" when we say that Gould Battery research and field engineering service have made Gould the BIG battery buy in the industrial field. Try us, and see. Gould-National Batteries, Inc., Trenton 7, N. J.

Always Use Gould-National Automobile and Truck Batteries

gould
BATTERIES

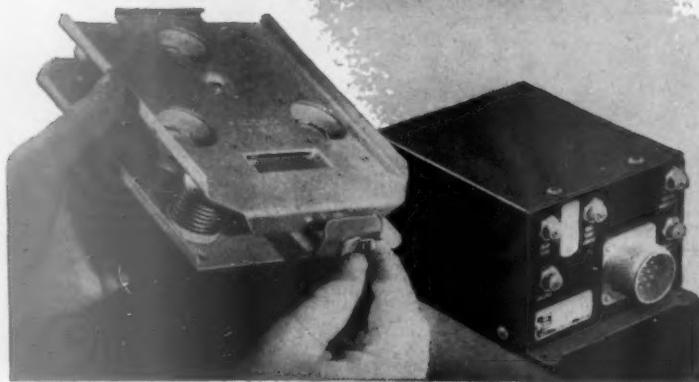
©1956 Gould-National Batteries, Inc.

For More Information Circle No. 313 on Inquiry Card—Page 17

OCTOBER, 1956

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ALLOY WIRE Cushions...



take the SHAKES out of AIRCRAFT INSTRUMENTS



Fabricated all-metal mounts have
high damping properties . . .
Resist deterioration.

Robinson Aviation, Inc., Teterboro, New Jersey, uses knitted stainless steel and nickel alloy wire cushions in their new all-metal engineered mounting systems to control vibration and shock in airborne electronic equipment and instruments. Alloy wire resilient cushions have attained performance standards heretofore impossible with conventional rubber or synthetic materials.

When fabricated into a special pattern, the wire forms literally thousands of tiny interlocking springs. Their high damping characteristics and non-linear spring rate provide ample protection against dynamic overloads. Alloy wire resists deterioration by oil, water, ozone, bacteria, dust and extreme temperatures. Knitted alloy wire is used in hundreds of other industrial applications, such as filters, mist eliminators, electronic shielding. For further information send today for our Application Bulletin A-1.



ALLOY METAL WIRE DIVISION

HKP

H. K. PORTER COMPANY, INC.
Prospect Park, Pennsylvania

For More Information Circle No. 314 on Inquiry Card—Page 17

association
news

(Continued from page 244)

purchasing department as quickly as possible and train several inexperienced buyers and clerical workers. We made very good use of the manual "Intracompany Training Program for Purchasing Personnel" after it was published in 1948, as well as other publications. A new "Guide for the Selection of Competent Buyers" will be available soon.

Our next move was to start perpetual inventory systems in several plants that did not have them. We received a great deal of help in this from publications listed in the above mentioned "Bibliography of Industrial Purchasing"—Edition 1949. A revised edition was published in 1955.

Magazine Articles Helpful

After building up some history on consumption of individual items of supplies, we began to look for some common sense ordering formula to eliminate guess-work and still keep a safe inventory. We found just what we were looking for in an article by Bruce D. Henderson, of Westinghouse entitled "Purchasing Profits Through Inventory Control" (Purchasing Magazine — November 1947, Pages 106-110). Ideas obtained from this article helped my company reduce supplies inventories in excess of a million dollars, thereby making this money available for working capital at a time when working capital requirements were increasing. Also, it is fairly well accepted that inventories cost at least 10% to carry due to interest, insurance, obsolescence, etc. This amounts to one hundred thousand dollars per year on a million dollar inventory. I would earnestly recommend that every member of the national association read Bruce Henderson's article.

(Please turn to page 256)

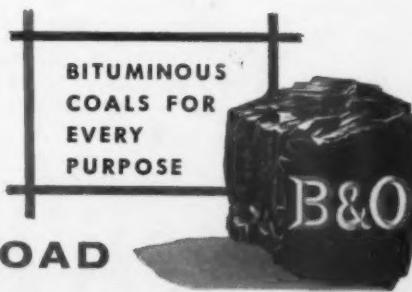


→ Take a long look into the future. You'll see constantly growing industrial activity and millions of tons of *power-packed* Bituminous produced to sustain it, with *billions* still in reserve! B&O is a keystone to this vital supply and demand. The coal fields it serves hold proved, usable reserves of billions of tons of Bituminous for every purpose.

Today, tomorrow or decades ahead you may be sure that B&O Bituminous can be *your* best source of stable-low-cost power. It will pay you to use this *fuel with a future NOW!* Ask our man!

CONTACT OUR COAL TRAFFIC REPRESENTATIVE!

You'll receive details in the most efficient, low-cost Bituminous coal for your particular requirements.
COAL TRAFFIC DEPARTMENT B&O RAILROAD
Baltimore 1, Md. LExington 9-0400



BALTIMORE & OHIO RAILROAD

For More Information Circle No. 315 on Inquiry Card—Page 17

More production for your tooling dollar is the reason...

WHY IT PAYS TO SPEND FOR CARBOLOY EXTRA-

If you rely on "Equivalent Grade" Charts to save a few tooling pennies, these facts on carbide costs may save you thousands of production dollars



TESTS ON STAINLESS STEEL VANED ROLLS by a New Hampshire pulp and paper-processing equipment manufacturer demonstrate how the "Equivalent Grade" Charts hide tremendous differences in carbides' production abilities. With Grade "X," production per tool was limited to two pieces per grind. Machine speed had to be held down to protect the carbide.

Switching to Grade 370 brought the manufacturer 8 to 9 pieces per grind. Machine speeds were doubled; 14 hours a day in labor were saved. Result: savings of more than \$100 a week, in addition to lower downtime, grinding, and inventory costs.

SO-CALLED "Equivalent Grade" Charts hide the fact that no two carbide grades will produce the same results. Because they classify carbides by broad areas of application, the Charts ignore important differences in production ability.

Thus, they mislead buyers into believing they can safely purchase the cheapest grade listed for a job.

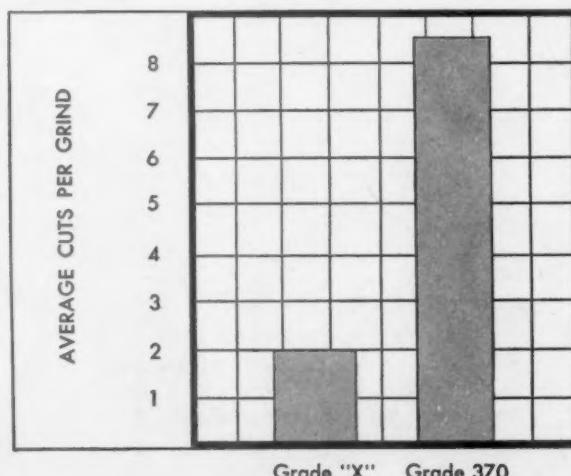
But actual tool-comparison tests have proved conclusively that the production abilities of carbides do vary tremendously. Moreover . . . these tests show that the pennies saved by buying on low initial cost often lead to thousands of wasted dollars . . . in lost production, lower machine efficiency, non-productive man-hours.

The case history at left is one of hundreds demonstrating why cost per finished piece — not initial cost — is the only reliable guide to buying carbides.

Results of an actual comparison test

According to the "Equivalent Grade" Charts, any one of several carbide grades could handle the job of machining these rolls. The manufacturer tried Grade "X" first — because it cost 10% less, initially, than Carboloy* Extra-Performance Grade 370.

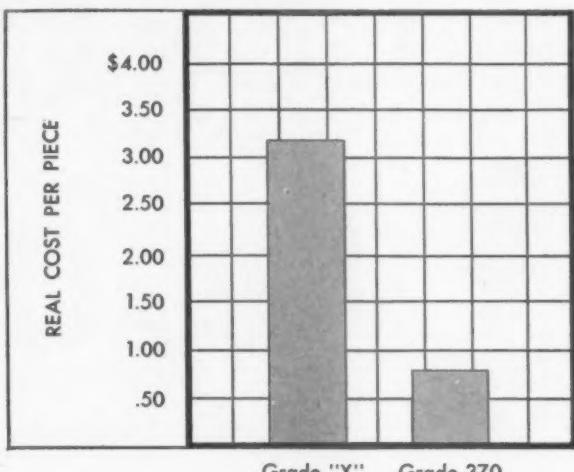
Grade "X," however, machined only two pieces per grind. Grade 370 increased production to 8 or 9 pieces per day (Graph No. 1).



A FEW CENTS MORE PERFORMANCE CARBIDES

When the *real* cost of the tools was calculated, the manufacturer found the initial saving with Grade "X" was actually *making* him lose more than \$100 a week. Here's why:

The real cost of Grade "X" was \$3.18 per piece machined (2 pieces from a \$6.37 tool). The real cost of Grade 370 is just \$.82 (average of 8½ pieces from a \$7.01 tool). On the weekly production of 42-43 rolls, the saving totals \$100.30!



Graph No. 2—Real Cost Comparisons

Yet even this eye-opening figure does not tell the whole story. The Grade 370 tool operated at twice the speed of Grade "X." It helped save the manufacturer 14 hours a day in labor. It provided twice the tool life. It eliminated a special finishing tool.

When these facts were translated into dollars and cents, the manufacturer found that downtime costs were reduced, because the tool remained on the job longer. Grinding costs were reduced, because the tool required less maintenance. Inventory costs were reduced, because a few tools did the work of many.

When added up, these amounted to a considerable saving — yet nothing in the "Equivalent Grade"

Charts could have forecast it. These are savings which buying on the basis of initial cost always obscures. These are savings which more than justify spending a few cents more for carbides with extra production ability.

Carboloy Extra-Performance Carbides available for all steel-cutting jobs

Heavy-Duty Grade 370, used in the test above, is one of three Carboloy Extra-Performance Carbides. Together with Medium-Duty Grade 350 and Finishing Grade 330, these grades cover the entire steel-cutting range from roughing to finishing.

Extra-Performance Grades 330, 350, and 370 cost more, initially, because they are made by a unique and more costly process. But their performance so far exceeds conventional carbides that there are actually no "equivalent" grades for any of them. They cannot be fitted into the arbitrarily selected cubbyholes on the "Equivalent Grade" Charts now in common use.

These Extra-Performance Grades easily expose the fallacy of the "Equivalent Grade" Charts, because they are so superior to other steel-cutting grades. But even when attempting to classify conventional grades, the Charts exhibit the same fatal flaw.

Because there is no way of knowing in advance how any grade will perform on the job, we make this suggestion: Always run your own comparison tests before you specify a grade. When the results are in, you will find that one grade will bring your plant significant savings in tool costs, machining and labor expense.

We think you will find that grade will be one of the Carboloy Extra-Performance Carbides. But whatever it is, specify it by name. Do not settle for an "equivalent" grade.

If you would like a more detailed discussion of the whole problem of Initial Costs vs. Real Costs, and the fallacies of the so-called "Equivalent Grade" Charts, write today for a sales engineer to call on you. Send your request to: Metallurgical Products Department of General Electric Company, 11143 E. 8 Mile Ave., Detroit 32, Michigan.

CARBOLOY
CEMENTED CARBIDES

AT THE METAL SHOW: "New Worlds in Metalcutting" with Carboloy Cemented Oxide and Carboloy carbide grades 330, 350, and 370. Booth No. 2124.

For More Information Circle No. 316 on Inquiry Card--Page 17

association news

500 Attend Central Iowa "Play Day"

EACH YEAR the Purchasing Agents Association of Iowa holds its annual "Play Day." It has become a very popular outing in which Association members and suppliers get together for golf, luncheon, and dinner. This year the outing was more popular than

ever; more than 500 attended. Winner of the grand prize of a set of golf clubs and a golf cart was John Allen of American Brass Co. The event was handled with efficiency and clockwork by General Chairman Don Bowman of John Deere Des Moines Works.



Among the earliest golfers to tee off at 7:00 AM were, left to right: Don Foster, Midwest Metal Stamping Co.; Bud Bailey, Olin Mathieson Co.; Hoyt Veber, Midwest Metal Stamping Co.; Dan Delanty, LaSalle Steel Co.; and Dean Cline, Cline Tool Co.

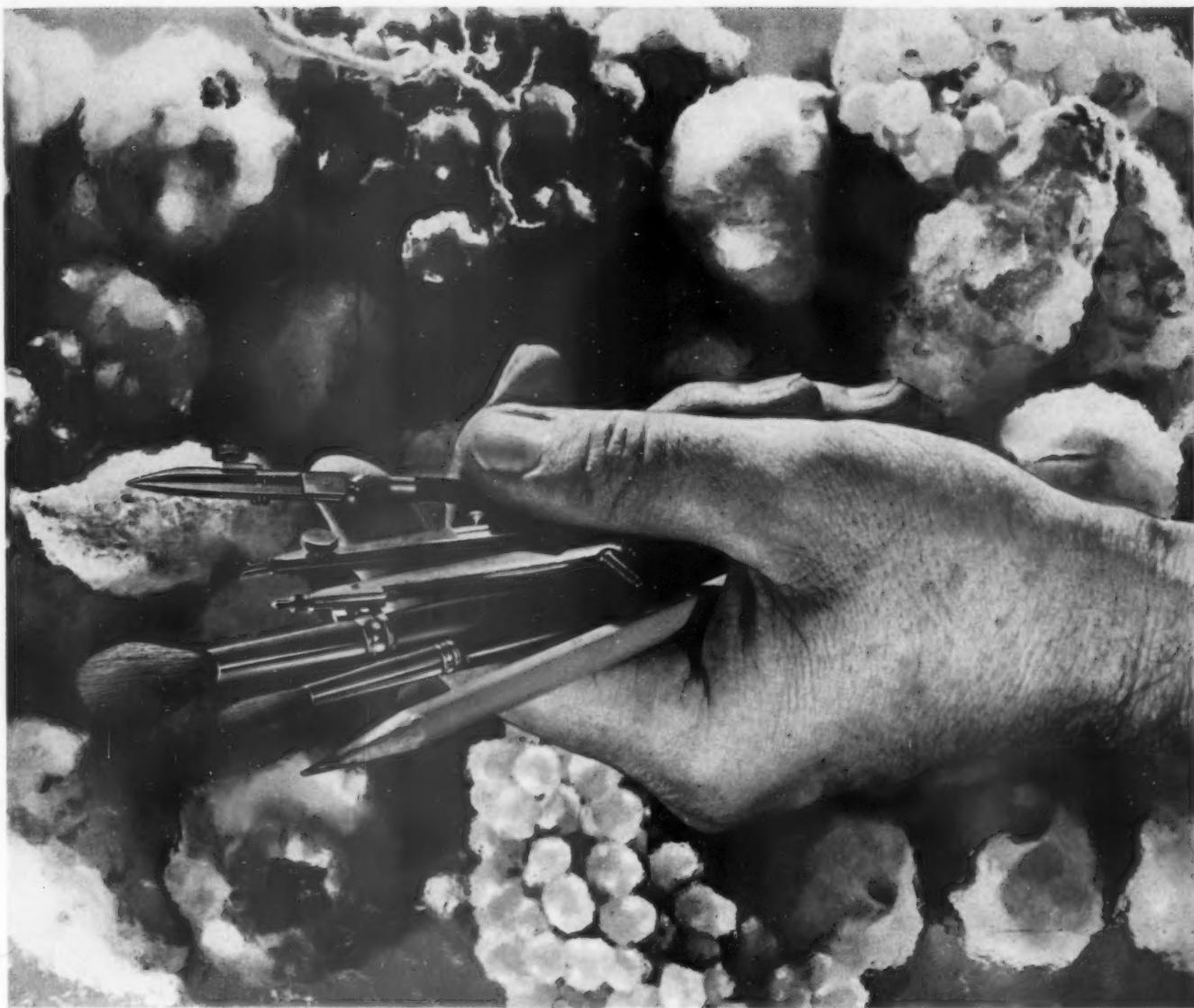
Among the guests of the Association was "Bulldog" Turner, sales manager of Interstate Steel Co. and former player and coach for the Chicago Bears football team.

Representing *Iowa Business and Industry* at the affair were Dom Bryant, Harold Hahn, and Stan Peterson.



Looking over the situation quite seriously (at this moment at least) is Bob Sampson, president of the Central Iowa Association.





New Protection for Perishables

through creative design in kraft packaging . . .

by **FROSTKRAFT**



5000 lbs. sit solidly on top of four new FROSTKRAFT produce boxes . . . positive demonstration of the stacking strength built into tough - tempered FROSTKRAFT containers.

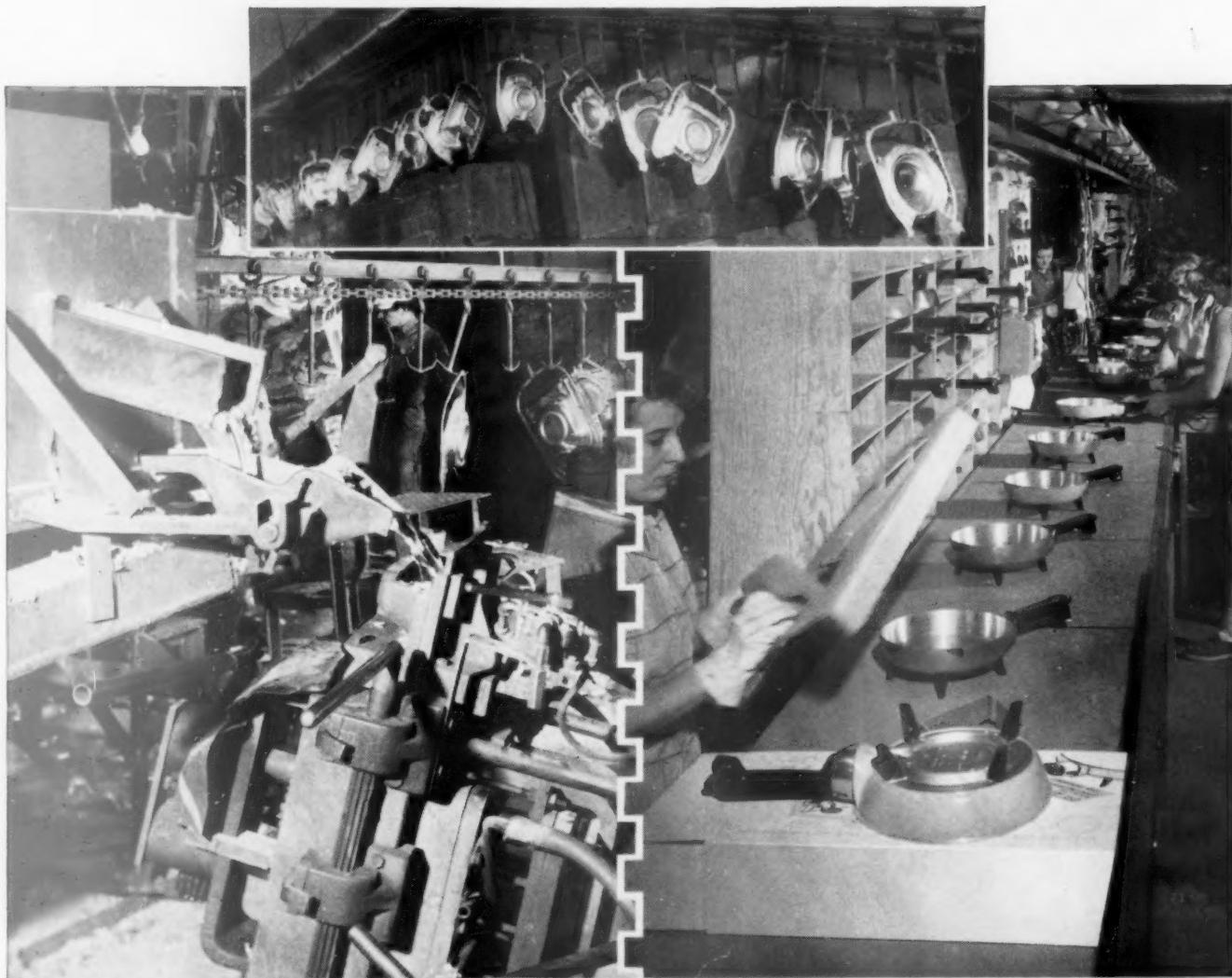
FROSTKRAFT'S rugged new container for perishable produce is now in production. Here is the box that beats all competition in the battle against loss by damage. This new box is of all-kraft construction. Not one ounce of its structural strength depends upon other, more expensive materials. It can be set up by unskilled labor in less than one second . . . no taping, stapling or gluing is required.

Engineered to industry-high standards, FROSTKRAFT designs are adaptable to any product. If you require kraft packaging of superior strength, you will find what you need in FROSTKRAFT'S complete range of tough-tempered containers, bags and multiwall sacks. Call us today.



FROSTKRAFT
paper products
FOREST PRODUCTS DIVISION
OLIN MATHIESON CHEMICAL CORPORATION
WEST MONROE, LOUISIANA

MONARCAST* ALUMINUM PERMANENT MOLD PRODUCTION IS GEARED TO MASS-ASSEMBLY LINE DEMANDS



MORE CASTING VALUE PER DOLLAR

The aluminum permanent mold process is a mass production method—at Monarch. High volume foundry operations have been pioneered by Monarch to gear a steady flow of castings to your mass-assembly line requirements.

Monarcast* methods provide highest quality metal structure, superior strength and dimensional accuracy. Flexibility of production operations is achieved, even during periods of product modification.

Monarch's unique finishing services featuring

Velvaglaze* and Spectraglaze* give you "one source" responsibility from rough castings through finished components.

"Non-competitive" experience in both aluminum permanent mold and aluminum and certified zinc die castings offer you factual answers on the right methods to obtain highest quality at lowest product end-cost.



* Velvaglaze, Spectraglaze and Monarcast are Trade Marks of

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MANUFACTURERS OF: Aluminum Permanent Mold Castings • Zinc Die Castings • Aluminum Die Castings • Exclusive
Velvaglaze Finishing • and Spectraglaze, colorful Porcelain Enamel on Aluminum Permanent Mold Castings.

For More Information Circle No. 318 on Inquiry Card—Page 17

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dependable

Equipped with time-tested hermetically sealed compressor for long life and trouble-free operation.

handsome

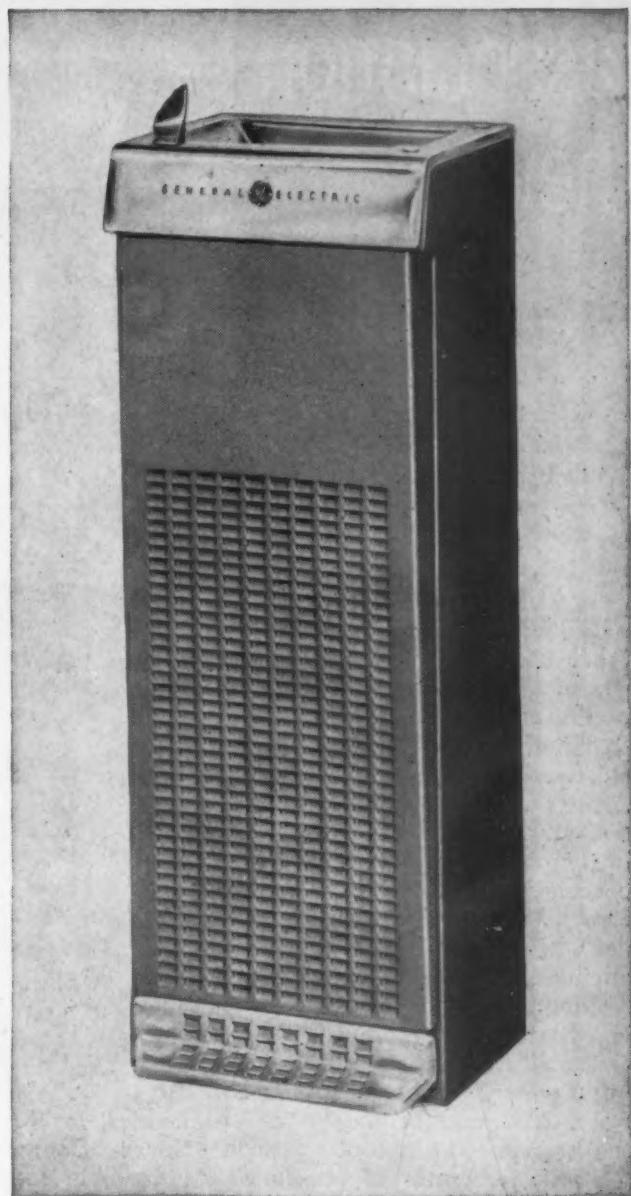
Simple, modern styling with louvered front. Hammered soft gray finish lends itself to every interior.

compact

Take up to 30% less floor space. Fit easily in shallow corners. Over-all depth is up to 5" less than other makes.

and thrifty

General Electric engineering for maximum efficiency cuts water and electricity bills. Operating cost is only pennies a day.



WATER COOLERS

for offices, stores, institutions and factories

These features make the big difference:

1. Full-width foot pedal for easier water control.
2. Anti-splash basin prevents splattering.
3. Adjustable dial has 8 settings for control of water temperature.
4. Extra-large stainless steel reservoir guarantees ample supply on peak demand days.
5. Direct rod to bubbler control assures steady stream of water.
6. Snap-off front panel for easy maintenance.

Whenever you include water coolers in your floor plans, specify General Electric Water Coolers...not only for quality and special features, but because there's a General Electric model to fit your particular requirements. They range in capacity from 2.85 to 21.5 gallons per hour. The standard General Electric 5-year protection plan backs up famous General Electric quality. Call your local General Electric Water Cooler dealer or write to General Electric, Commercial and Industrial Air Conditioning Department, 5 Lawrence Street, Bloomfield, N. J.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

For More Information Circle No. 319 on Inquiry Card—Page 17

Outstanding Program Arranged For 8th District Conference

SYRACUSE, New York on October 24th and 25th, will be the site of the 3rd annual conference of the 8th District, National Association of Purchasing Agents. Host association is the Purchasing Agents Association of Syracuse & Central New York.

Theme of the two-day conference is "Purchasing Signs of the Times." Program Chairman Donald C. Robinson has arranged for an impressive array of speakers. Among those appearing will be H. Stafford Kellam, president National Association of Purchasing Agents; Dr. Charles Frederick Roos, chairman of the board of the Econometric Institute; Joseph G. Smith, director of purchases, Pittsburgh Steel Company; C. Frank Greene, administrative assistant, director of purchases, I. B. M.; and Chester F. Ogden, Detroit Edison Company.

Sessions will be devoted to signs of the times in imaginative buying, in planned training, in eco-



Chester F. Ogden



H. S. Kellam

nomics, in N.A.P.A., in Business Survey Committee, in public relations, in legal aspects of purchasing, and in legal implications of standardization.

General chairman for the conference is Adolph Ruediger, Carrier Corporation. Mr. Ruediger is being assisted by A. Kemp Stevens, honorary chairman, Air Cooled Motors, Inc., Liverpool,

New York; J. M. Austin, vice chairman, Oneida, Ltd., Oneida, New York; Donald C. Robinson, program chairman, Oswego Falls Corporation, Fulton, New York; John E. Edmonds, conference secretary, Lipe-Rollway Corporation, Syracuse, New York; and Max Riepel, treasurer, Alexander Grant's Sons Company, Syracuse, New York.



Adolph Ruediger



J. M. Austin



Joseph G. Smith

APEX "fast lead" SOCKETS

SOCKET AND NUT
FULLY ENGAGED
IN 1/6TH OF A TURN!



the socket
that's "on"
in a
split second!

Put an Apex "fast lead" impact socket on one of your power tools and turn on the power. Now, with the tool running, bring it right down on the nut, without the slightest hesitation. There! . . . the socket is "on" in one smooth, uninterrupted motion, fully engaged almost instantly upon contact! And you can do the same thing on nut after nut, without ever stopping and starting the tool.

Continuous, full-speed operation of power tools, made possible with Apex "fast lead"

impact sockets, can help you make important savings in time and labor on any production fastening operation. Whether you use single tools or multiple units, you should have these new Apex impact sockets working for you.

Apex "fast lead" impact sockets are available with hex broached openings from $\frac{3}{8}$ " to 1". These, and over 5,000 additional Apex stock nut running tools are described in our Catalog 29-R. Write, on your company letterhead please, for your copy.

Ask

APEX

for the answer to your nut running problem!

THE APEX MACHINE & TOOL COMPANY

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For More Information Circle No. 320 on Inquiry Card—Page 17

PURCHASING AGENTS!

RCA OFFERS 3 NEW AIDS TO ELECTRON-TUBE PROCUREMENT



RCA Power and Gas Tubes (PG-101B)—24-page booklet contains descriptions, terminal connections, technical information on 178 RCA vacuum power tubes, rectifier tubes, thyratrons, ignitrons, magnetrons, and vacuum-gauge tubes. The most up-to-date booklet of its kind in the industry.

Receiving-Type Tubes for INDUSTRY and Communications (RIT-104)—new, 20-page booklet contains up-to-the-minute technical information on 130 RCA receiving-type tubes especially suited to industrial electronics. Includes technical data, socket-connection diagrams, and descriptions on RCA Special Reds, Premium, computer, pencil, glow-discharge, small thyratrons, low-microphonic, and other tube types.

RCA Photosensitive Devices and Cathode-ray Tubes (CRPD-105)—a new 24-page booklet, just released; contains descriptions and technical details on gas, vacuum, and multiplier phototubes; camera tubes; monoscopes; flying-spot cathode-ray tubes; view-finder, monitor, projection, and transcriber kinescopes; oscilloscope and storage tubes—107 different types essential to industrial electronics and laboratory equipment.

Your RCA Tube Distributor—conveniently located—offers you the finest, fastest service on all your electron-tube requirements. Write on your company letter-head to RCA, Commercial Engineering, Section J-36-T, Harrison, N. J., for a copy of PG-101B, CRPD-105, and RIT-104.

SEND FOR THESE BOOKLETS TODAY!



TUBES FOR INDUSTRY
RADIO CORPORATION OF AMERICA

RCA ELECTRON TUBES...LONG-LASTING, DEPENDABLE...AVAILABLE THROUGH YOUR AUTHORIZED RCA TUBE DISTRIBUTOR

For More Information Circle No. 321 on Inquiry Card—Page 17

association
news

(Continued from page 246)

The next project we started was on value analysis and our first approach was through the national association manual "Cutting Costs by Analyzing Values." A revised edition of this manual is under consideration.

After gaining some knowledge of individual supply items from value analysis, we were ready to tackle standardization. The new N.A.P.A. standardization manual was the backbone of our approach to this problem. And, I might add that this manual has more meat in it than anything we have seen on this subject.

Although we are not too far along on our standardization program, we have already accomplished a great deal in a few plants using just the simplification idea alone. I refer to simplification as having to do with the reduction of the variety of items purchased; a reduction of the number of types and sizes of items to a minimum consistent with the needs of an industrial operation.

Savings Through Simplification

We found in one of our large plants that they were stocking 731 different types, sizes, etc., of pipe fittings. This number has been reduced to 343 and they actually like it better since now they can find what they want. In another plant we have eliminated stocking two-thirds of the different types and sizes of files and paint brushes. Hundreds of small items actually amount to quite a bit of money. Another plant has discontinued stocking 200 items completely.

It is my understanding that there is a new education manual in the making. This will give local educational committees more factual data to aid them in bringing the best possible programs to their members.

(Please turn to page 258)

How USS GERRARD speeds handling—cuts costs



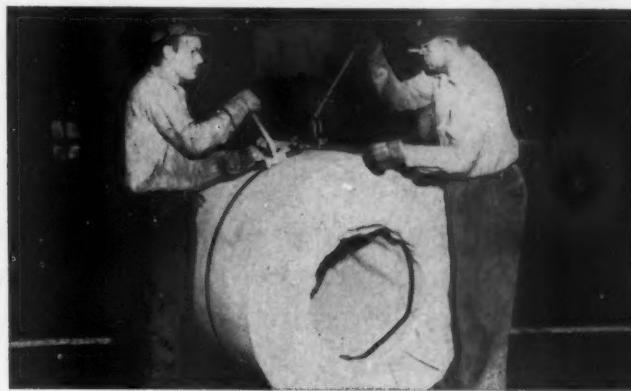
"We have been able to cut handling time, give our customers better service, balance our work load, save storage space, and reduce brick breakage through the use of USS GERRARD Round Steel Strapping," says Glen-Gery Shale Brick Corporation of Reading, Pa., largest building brick manufacturer in the East. Glen-Gery uses 12-gauge USS GERRARD Round Strapping to package bricks in easy-to-handle units of 500.



"We rely on USS GERRARD Strapping to get our houses to the building sites in perfect condition," says West Coast Mills, Chehalis, Washington, manufacturers of prefabricated Far West Homes. These attractive prefabs are shipped all over the United States by rail and truck, bundled securely with USS GERRARD Round Steel Strapping. They arrive consistently at the building sites with every piece intact.



"We reduced handling time by 75%, increased storage space by 33%, and cut shipping damage to less than 1%, by palletizing our tuyeres with USS GERRARD Flat Steel Strapping," says Climax Fire Brick Company of Climax, Pa., producer of 60% of the nation's requirements for these odd-size Bessemer Furnace fire bricks.



Waterproof-wrapped for shipment, this coil of sheet steel is being reinforced with USS GERRARD Flat Steel Strapping. Notice how strip of strapping inside coil exerts outward tension, keeping protective paper in place.

Bring your packaging-tying problems to USS GERRARD. Regardless of what they are, our engineers will help you find the safest, surest, most economical solution to them.

NEW CATALOG—HOT OFF THE PRESS! 36 pages of photographs, descriptions, facts and figures on all USS GERRARD Steel Strapping and associated equipment.

GERRARD STEEL STRAPPING DIVISION, UNITED STATES STEEL CORPORATION
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STEEL STRAPPING
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can save you money in
STATIC or MOVING
seal applications

MOLDED O-RING SEAL LATHE-CUT SEAL

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....This seal will save you money with no performance sacrifice. Minimum tooling cost, no molds, no costly delays. Can be made up to 25" I.D.

Acadia Synthetic Rubber Parts are the highest quality components, processed for oil resistance, good aging properties, resistance to heat. They can be furnished in any dimension or special compound you desire to precision tolerances. They are another example of Acadia's ability to **SAVE YOU MORE . . SERVE YOU BETTER.**

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MANUFACTURERS AND CUTTERS OF WOOL FELT

For More Information Circle No. 323 on Inquiry Card—Page 17

association news

(Continued from page 256)

There is a study being made to develop an outline for a revised visual educational manual. This manual will be broadened to include, in addition to films, several other types of media, such as cards, etc. This is good news to me since practically all films recommended by the National Association have been shown at meetings of the Carolinas-Virginia Association and some films more than once.

Textbook for Course

There have been numerous books such as "Industrial Purchasing" published, sponsored or recommended by the National Association. One of these has been used as a textbook in a Purchasing course sponsored by the Carolinas - Virginia Association. There is a teacher's manual available for this book.

The Carolinas-Virginia Association has held several adult courses in Greensboro, N.C., during the past few years. These courses were well attended and they varied in length from 10 to 15 weeks. The material furnished or recommended by the national association was most helpful to the instructors, who were Furman Pinson, manager of the purchasing department, J. P. Stevens & Co., Inc., and John McGehee, of Vick Chemical Company. A new course started in Greensboro on October 1 and will run for 15 weeks.

The national association manual for education programs in local associations is very valuable to an educational committee chairman in planning educational programs and purchasing courses—Part I for Experienced Purchasing Agents on Purchasing Administration; and Part II for Beginners in the Field of Purchasing on Basic Purchasing Policies.

(Please turn to page 260)

For Precision... Use
BISHOP



Resistant to:
Corrosion
Heat
Shock
Stress
Vibration

STAINLESS STEEL Small Diameter Tubing
(.008" to 1.000" O.D.)

NICKEL and NICKEL ALLOY Tubing
(up to .625" O.D.)

AIRCRAFT TUBING

FABRICATED TUBULAR PARTS:

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Flared
Milled
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PLATINUM GROUP METALS AND ALLOYS:

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Electrodes
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Precious Metal Catalysts
Rhodium Plating Solutions
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METALS



J. BISHOP & CO. PLATINUM WORKS

Malvern, Pennsylvania

"Also, Now Available Glass-to-Metal Sealing Alloys."

For More Information Circle No. 324 on Inquiry Card—Page 17

association news

(Continued from page 258)

There is a great deal of information available on the value of a company purchasing manual. One can be used even as a purchasing tool. (See the list on Page 21 in the revised edition of "Bibliography of Industrial Purchasing"). The Educational Development Committee on Intra-company Activities pamphlet, "Suggestions for Development—Recording—Use of Purchasing Policies and Procedures for a Purchasing Department Manual", is very good.

I guess almost everyone realizes the value of visiting plants. But, a word of caution. The visitation should not be an erratic, spontaneous or disconnected association function. To be successful a plant visit must be well planned and well organized. You will find the N.A.P.A. pamphlet "The Plant Visitation" to be very helpful and informative on this subject. There are also several other listings on Page 30 of the bibliography.

George W. Aljian is now guiding the complete rewriting of the "Purchasing Handbook". A tremendous effort is being expended by several of our nationally known members on this very important project. James M. Berry, of Vick Chemical Company, our own chairman, happens to be one of those giving a lot of time to this.

PURCHASING magazine is the best source of current, practical information I know of on purchasing policies, methods and procedures. It is full of articles on actual cases of our member companies.

Problems and their solutions are something that any of us can understand. The supply analyst of my company, James A. Lybrand III, has a large binder containing articles he has taken from PURCHASING Magazine which he says has been extremely valuable in his work. By the way, Frank C. Dengler's article "Using Standards in MRO Buying" in the June 1956 issue happens to be one of the articles in Mr. Lybrand's binder. PURCHASING also carries numerous good articles on the clerical problems of our job.

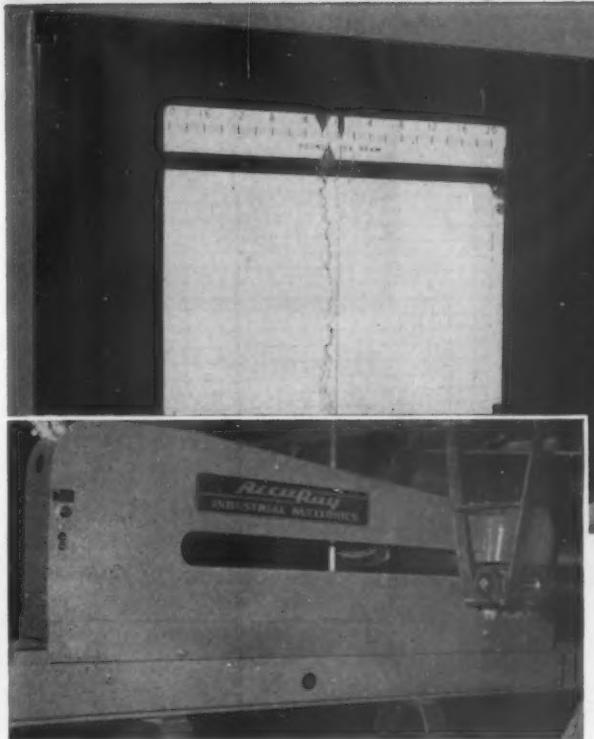
Members Not Using Service

The average member is not making use of the information that is available from the national association. I don't think anyone can successfully dispute this statement. In the Carolinas-Virginia Association this problem has been faced squarely by the educational committee for the last few years. My predecessor as chairman of the Educational Committee, Furman Pinson, worked very hard trying to get this across to the membership and I have been continuing the efforts along the same lines, but with very little success. At each of our meetings we have stressed one publication and we have had a few copies available at two or three convenient locations. Then, sometime during the meeting, a member of the Educational Committee would explain the value of this publication to those present and point out the fact that several copies were available for the members to pick up. But what bothers me is the lack of interest shown by the general membership. I would now like to throw this problem out for discussion and I earnestly hope that we can come up with some ideas that will convince the average member that his value to his company can be greatly increased by studying some of the wonderful information that is available from the national office.

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PAGE 17**



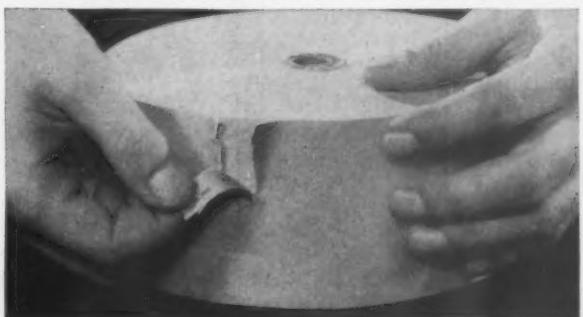
SAFETEX glue coating is continuously inspected, measured and controlled by the AccuRay for a degree of uniformity never before possible.

SAFETEX is top grade kraft combined with 100% animal glue under coating conditions rigidly controlled by the AccuRay. These atomic-age instruments achieve a degree of glue coating uniformity never before possible to increase sealing speed for lower application costs.

Exclusive SAFETEX Herringbone tread spreads water faster, more uniformly, for greater holding power, more protection per carton shipped.



Pull-Tab zips open SAFETEX rolls faster, eliminates knife slashing, saves up to 10 feet of tape per roll.



SAFETEX is available in all needed weights and widths . . . in natural, tan and 9 bright colors . . . plain, or attractively printed to your specifications.



Packed in moisture-proof cartons, SAFETEX stays factory fresh and stores efficiently.

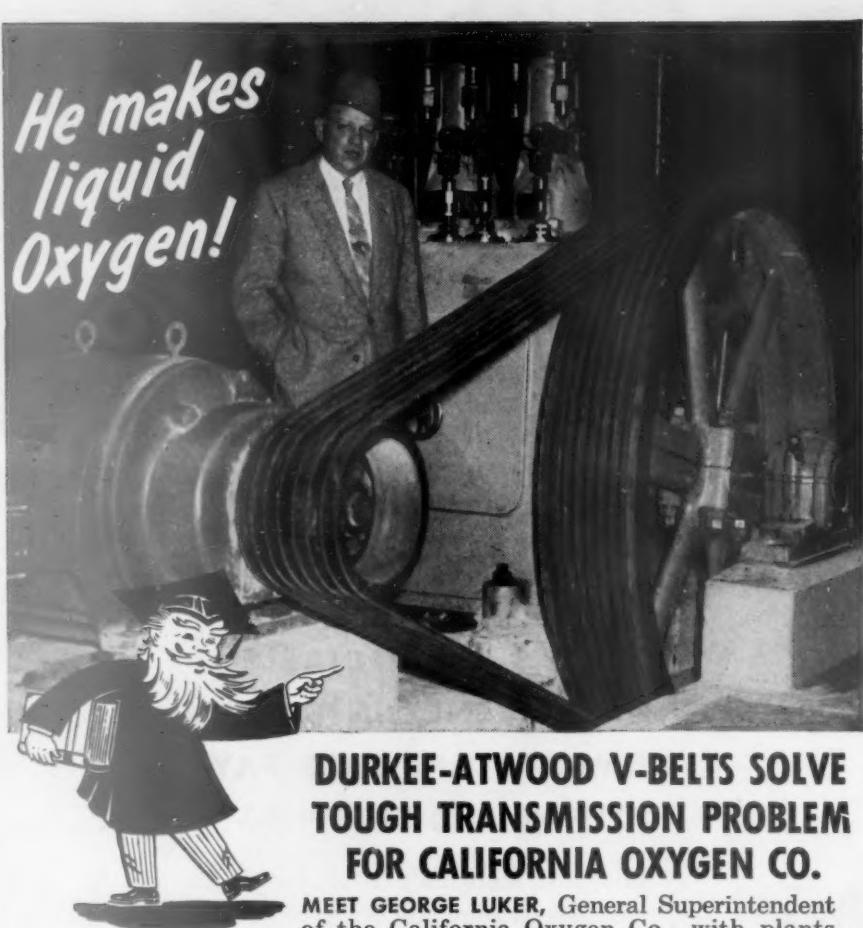


Cracked glue surface gives SAFETEX perfect pliability . . . every foot is usable, right down to the core.

Find out how the *detectable* difference in SAFETEX superstandard gummed tape can lower your *buy-and-apply* costs. Call your SAFETEX distributor now.



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DURKEE-ATWOOD V-BELTS SOLVE TOUGH TRANSMISSION PROBLEM FOR CALIFORNIA OXYGEN CO.

MEET GEORGE LUKER, General Superintendent of the California Oxygen Co., with plants throughout California and Oregon. The Sacramento plant produces tons of liquid oxygen per day, using heavy equipment such as the expansion engine shown in photo.

V-belts on this expansion engine really take a beating. In producing the liquid oxygen, the 60 h.p. electric motor must serve as both driver and brake . . . resulting in constant reversal of force on the seven belts.

To assure peak production, Mr. Luker called on Durkee-Atwood and their distributor, Western Industrial Supply Co., Sacramento, Calif., for rugged, power balanced V-belts . . . belts that are designed for the job . . . belts that are built to take punishment.

CALL ON DURKEE-ATWOOD. Let D-A's experienced distributor and factory experts help solve your power transmission problems. Find out today about D-A's valuable *Super Service* to industry.

D-A's power balanced construction gives maximum flexibility, durability and strength.



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HANDY TIPS ON
V-BELTS & V-DRIVES

See your nearby D-A distributor or write Dept. P-10 for catalog that includes conversion tables, engineering data, latest Rubber Manufacturers Association horsepower ratings, drive selections and helpful Do's and Don'ts of V-belt operation.



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DURKEE-ATWOOD COMPANY

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V-BELTS

MOLDED RUBBER

SPONGE RUBBER SHEETING

DOR-TITE

TAPE



For More Information Circle No. 326 on Inquiry Card—Page 17

association news

Milwaukee PA's Aid Purchasing Conferences at Univ. of Wisconsin

The University of Wisconsin, Industrial Management Institute, in cooperation with the Milwaukee Association of Purchasing Agents will conduct a series of conferences during 1956 and 1957.

Known as the Purchasing Techniques Institute, this year's conference series was designed by The University of Wisconsin with the assistance of an active advisory group of purchasing leaders and is also based on surveys and interviews with a considerable number of purchasing management personnel.

The sessions are geared to combine the ideas and knowledge of the men attending with those of the nation's top purchasing authorities and are scheduled for the busy purchasing executive. In order to accommodate as many as possible, the conferences will be held on concurrent days. The program, as currently planned, is as follows:

First Conference—October 4, 5, 1956. "How to Sell Yourself and Your Ideas." Purchasing managers have often said that one of their major problems is getting others to accept their ideas and techniques and put them to use. This conference is planned to aid them in this area. Conference leader: William L. McCaskill, sales training director, Worrell-Consolidated Laboratories, St. Louis, Missouri.

Second Conference—November 8, 9, 1956. "How to Communicate Effectively." This session will be devoted to one of the most important phases of management—communications. Topics under discussion will be the requirements of good business writing, correspondence and report writing. Emphasis will be on shortcuts to good writing and current trends.

(Please turn to page 266)

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For More Information Circle No. 327 on Inquiry Card—Page 17
 OCTOBER, 1956



Fig. 1816 Flat Side Body Bottle Oiler

Fig. 495 "Alpha" Oil Pump

Fig. 487 "Major" Drop Feed Lubricator

Fig. 1183 Automatic Liquid Gauge

Fig. 433 Pop Safety Valve for Steam

Fig. 1227 Pop Safety Valve for Air

Fig. 1815 Globe Bottle Oiler

Fig. 1300 "Sentinel" Sight Feed Oil Cup

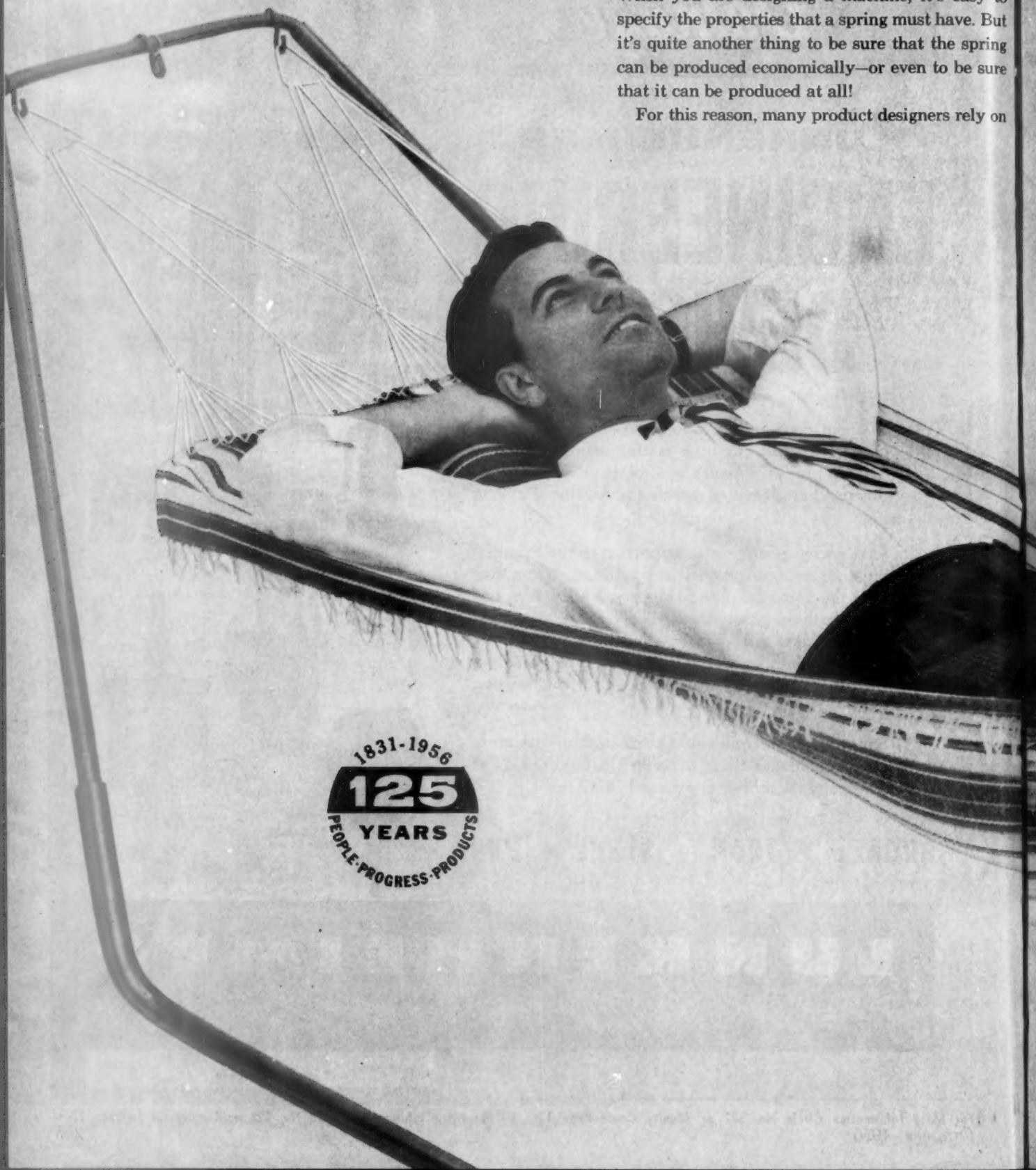
For More Information Circle No. 328 on Inquiry Card—Page 17→
 263

TAKE IT EASY!....

let American

When you are designing a machine, it's easy to specify the properties that a spring must have. But it's quite another thing to be sure that the spring can be produced economically—or even to be sure that it can be produced at all!

For this reason, many product designers rely on



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specialists to help with spring design; and, believe it or not, even in these times of inflation, the specialists are free.

We refer, of course, to the spring engineers at American Steel & Wire. When you come down to the last phase of a new design, call in your Amer-

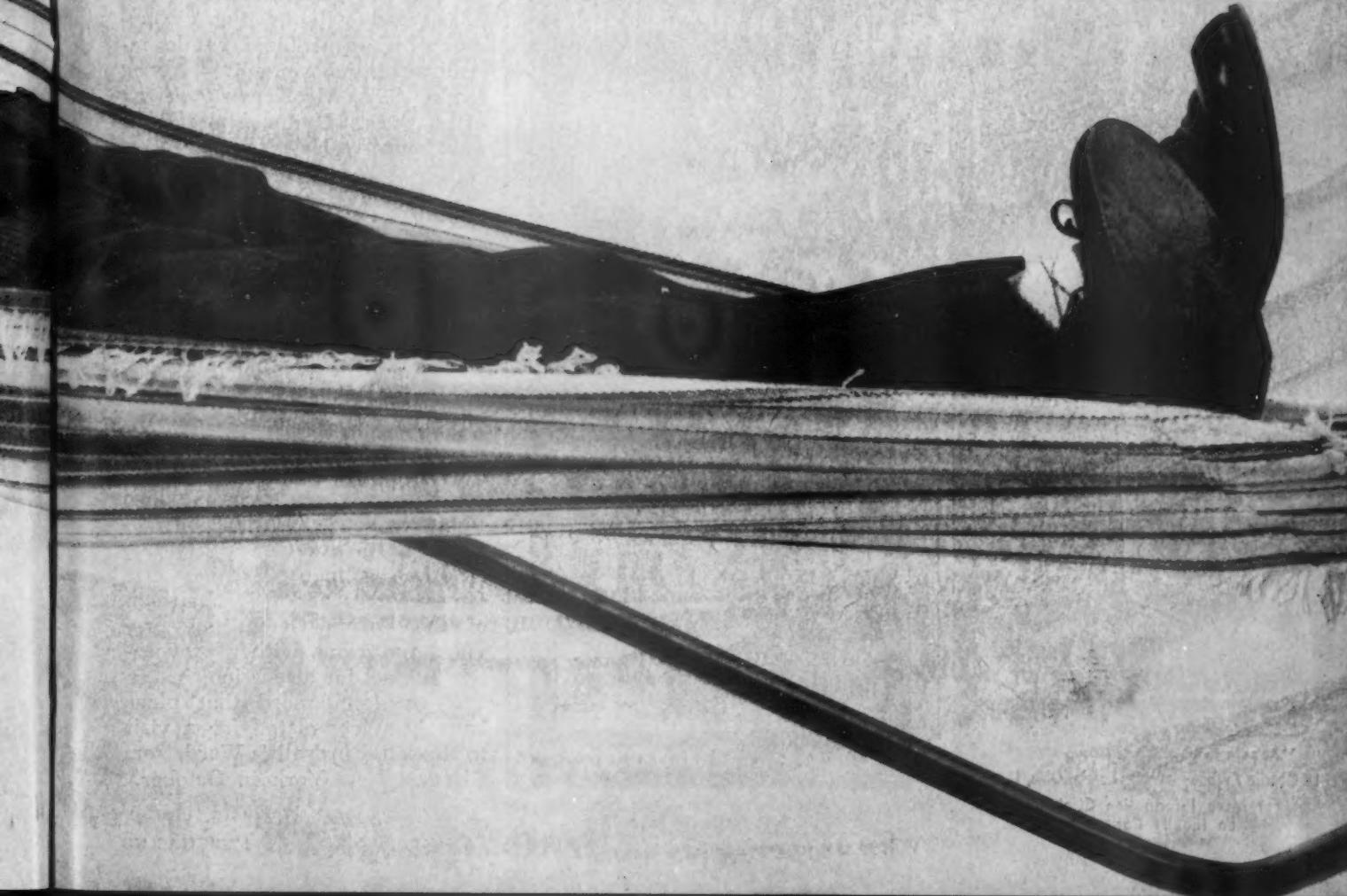
ican Steel & Wire representative. Perhaps a small specification change here, and a little design change there, will give you a *better* spring for the job, capable of mass production in high-speed machines with the obvious advantage of lower costs.

Just call your AS&W salesman.

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HEATS FAST SAVES TIME

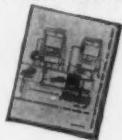
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Start heat treating high speed and carbon steels while other furnaces warm up. Powerful burners in this efficient furnace get heat up to 1300°-2350° F. range in minutes. Temperatures accurately and quickly regulated. Ratchet-operated door opens upward — no need to open fully every time. High temperature refractory-lined firebox keeps heat uniform — 7" by 13" by 16½". 200,000 BTU's per hr. Carbofrax hearth, G.E. Motor and Johnson Blower included F.O.B. Factory, \$337.00

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For More Information Circle No. 329 on Inquiry Card—Page 17

johnson

If it burns gas look to Johnson—
Since 1901

association news

(Continued from page 262)

Third Conference—December 6, 7, 1956. "Purchasing Costs and Value Control." This conference will be a bedrock, dollar-saving session with emphasis on purchasing's role and contribution to quantity, quality, price standardization, value and vendor selection. Conference leader: Russel Stark, director of purchasing, Burroughs Corporation, Detroit.

Fourth Conference—March 7, 8, 1957. "The Foundations of Efficient Purchasing Organization." This conference will be devoted to the internal and external relationships of the purchasing department. First, the relationships and organization within the department will be discussed, and secondly, the coordination and cooperation between purchasing and other departments such as production control, costing, etc. Also considered will be the controversy over centralized vs. decentralized purchasing. Conference leader: S. W. MacKenzie, director of purchases, United States Rubber Company, New York.

Renard Speaks to North Jersey

The Purchasing Agents Association of North Jersey at a recent dinner meeting heard George A. Renard, national secretary-treasurer of the National Association of Purchasing Agents speak on the topic, "One P.A. to Another."

Preceding the dinner was a forum meeting on, "Does Modern Industry Need a Purchasing Department? Why? Can You Prove It?" J. J. Donnelly, Westinghouse Lamp Works and new chairman of the Forum Committee, provided the group with a provocative subject for discussion.

It was announced that plans have been completed for a visit to Russell, Burdsall & Ward, Port Chester, New York in October.

PURCHASING

Promet Engineered Bronze

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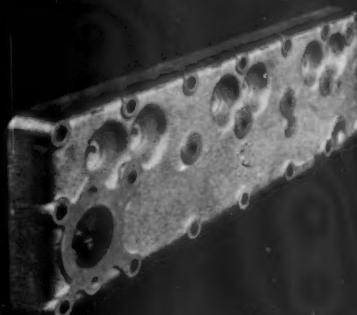
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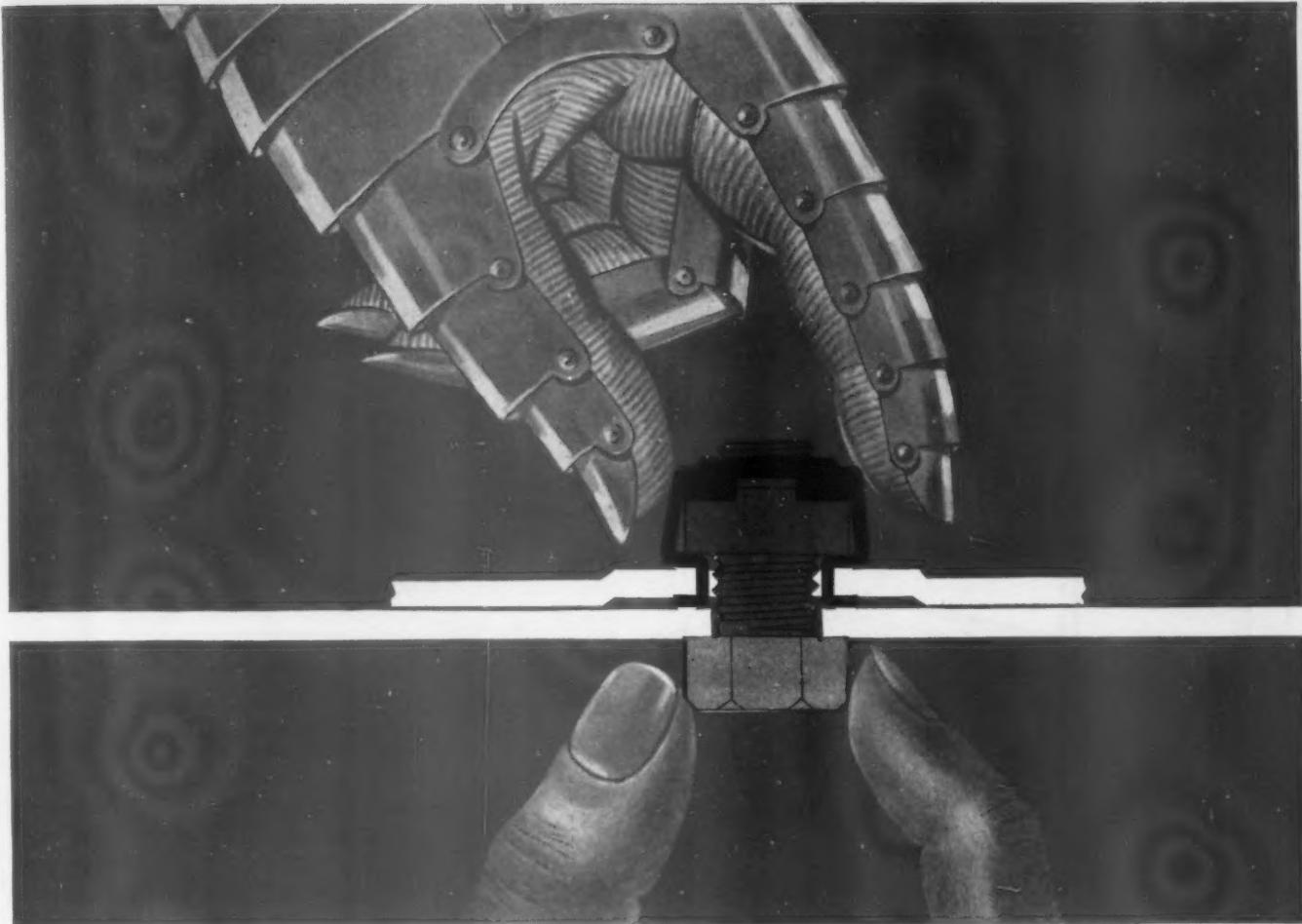
Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they COST YOU NO MORE...because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

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For More Information Circle No. 331
on Inquiry Card—Page 17

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For More Information Circle No. 330
on Inquiry Card—Page 17



FINGERS OF STEEL that hold where you can't reach

If you can't reach the back of a panel to hold a nut, let the spring steel fingers of a Tinnerman SPEED GRIP® Nut Retainer hold it for you. No welding or staking, no special skills or equipment required. It's the most efficient way to attach a square nut to a panel in blind location.

The SPEED GRIP combines a square nut retained in a spring steel cage. The SPEED GRIP snaps easily into the panel. Expensive rigid position methods are eliminated. Nut floats free in the cage to offset minor hole misalign-

ments, but cannot turn as bolt is tightened.

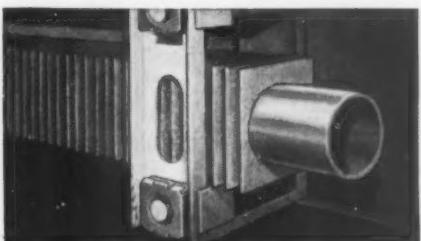
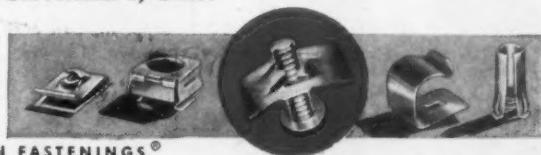
SPEED GRIPS can be put on anywhere along your assembly line . . . no side trips to special stations, no line deviations of any kind. Rust-proofed, they can be applied after painting, ending costly masking or retapping of paint-clogged threads.

Consult your Tinnerman representative soon and write for Bulletin No. 335. Tinnerman Products, Inc., Box 6688, Department 12, Cleveland 1, Ohio.

TINNERMAN

Speed Nuts®

FASTEST THING IN FASTENINGS®



SPEED GRIPS eliminate several punched and tapped holes, cut assembly costs 78%, simplify installation of heater.



SPEED GRIPS applied after painting simplify blind-location assembly of auto seat handle, avoid paint-clogging of threads.



SPEED GRIPS cut costs 75% by replacing tapped holes and weld-type nuts as mounting fasteners on car radio.

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Load 'em high . . . treat 'em rough. Fairbanks steel-framed trucks bounce back for more. Tough select oak platforms, bolted to sturdy steel frame mounted on Fairbanks **LOCKWELD** Steel Double Ball Race Swivel Casters — give you low cost, dependable service mile after mile, year after year.



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Vulcanized
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easier movement
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load conditions.
Give you greater
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Steel-framed
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For More Information Circle No. 333 on Inquiry Card—Page 17

association
news

N.I.G.P. Conference To Be Held In Chicago

The Eleventh Annual Conference and Products Exhibit of the National Institute of Governmental Purchasing will be held at the Conrad Hilton Hotel, Chicago, October 14-17, 1956. Membership in the Institute is not a requirement for attendance. The sessions are open to the public purchasing profession.

The conference will feature practical round-table discussions and separate administrative breakfast sessions arranged for various governmental levels and population categories. Officers of the Institute and NIGP committees on federal excise taxes, standards and tests, and federal surplus property will report on matters of interest to every public procurement executive.

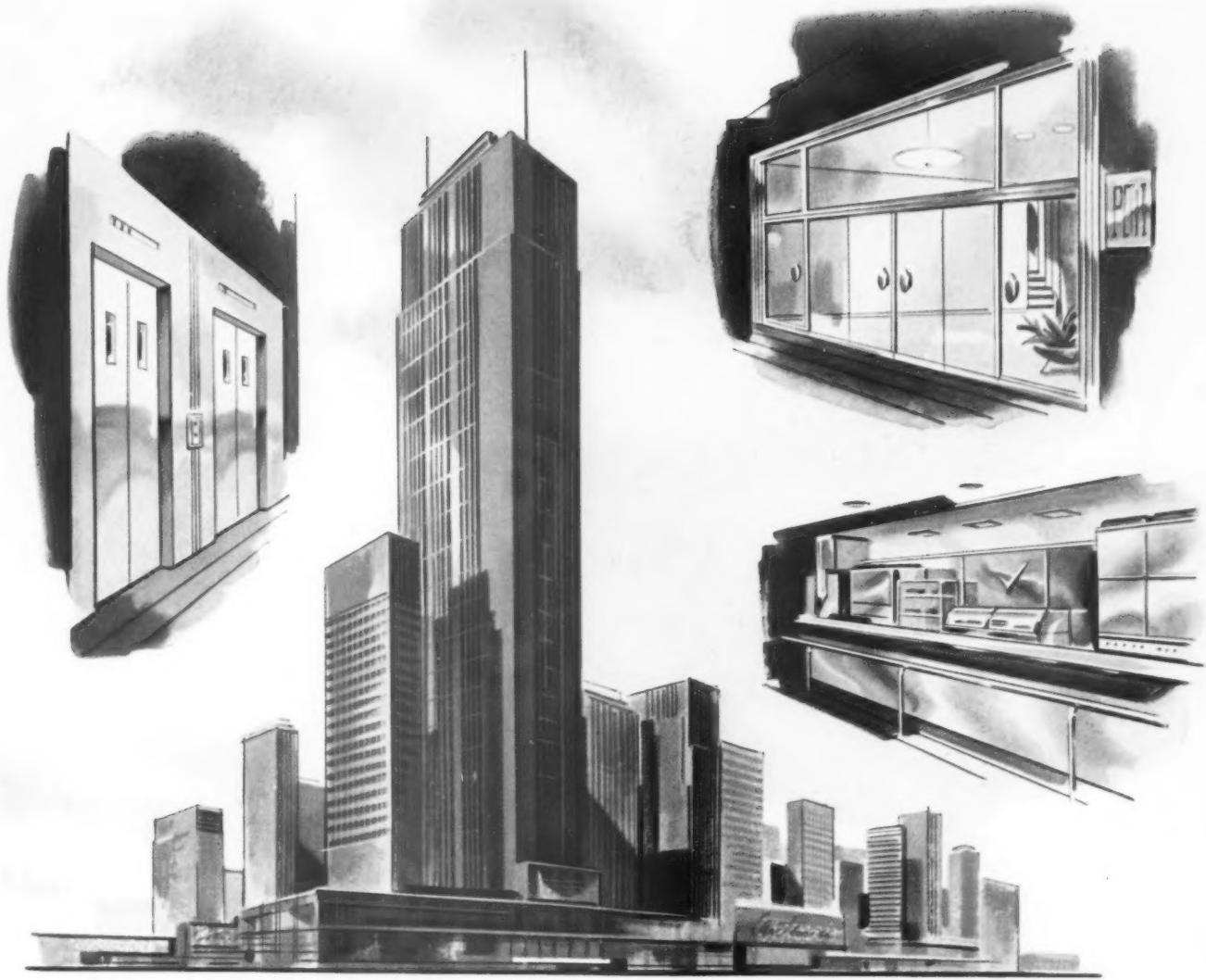
More than 100 companies will display the latest products of American industry. The Products Exhibit is an integral part of the program. It is an educational adjunct to the conference.

The two official luncheon sessions will present outstanding speakers. They are: T. J. Jones, O.B.E., chief officer of supplies of the London County Council and chairman of the executive committee of the Royal Institute of Public Administration. Mr. Jones will discuss the work of the Institute of Public Supplies Officers of Great Britain and the career system in the British public service.

C. A. Harrell, city manager of Cincinnati, will present his views on the professional in government.

Some of the other subjects to be discussed at the Chicago conference are: organization and administration of a public purchasing agency, forms development and control, legal phases of public buying, organizing and operating a board of standardization, preparing purchasing manuals, and preferential buying.

For More Information Circle No. 334
on Inquiry Card—Page 17
PURCHASING



in buildings... everybody benefits from stainless steel

the architect specifies long-lasting Stainless Steel for its strength, its beauty and its economy of maintenance. In heavy use areas and for weather-exposed panels and trim, nothing stands up or keeps its smooth finish like Stainless Steel.

the builder likes working with Stainless Steel. It is easy to install, does not dent, peel or discolor and presents no problem on matching or replacement.

the tenants enjoy living or working in buildings that are bright, clean and attractive because of Stainless Steel.

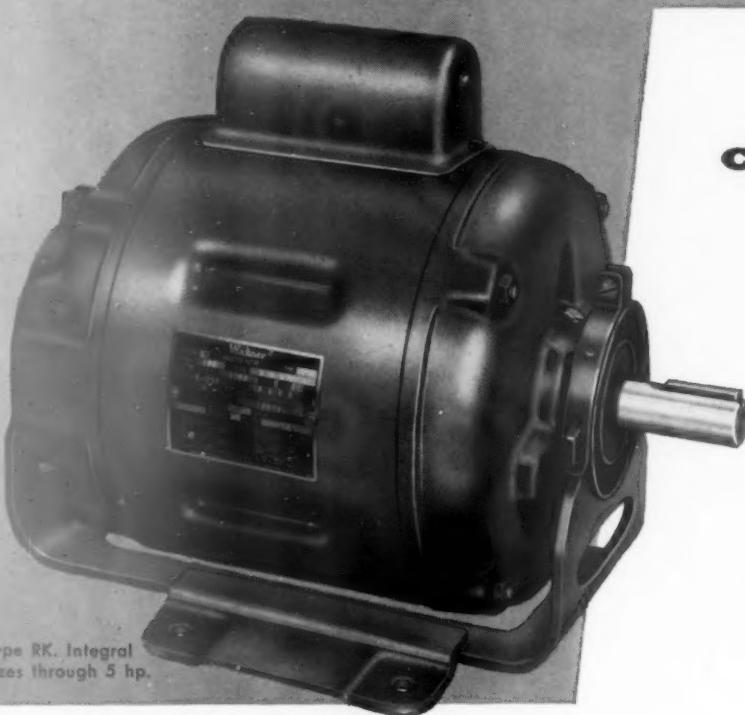
McLOUTH STAINLESS STEEL

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Type RK. Integral sizes through 5 hp.

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For years Wagner Motors have been the first choice of many leading manufacturers of air conditioners, refrigerators, freezers, water pumps and motor-driven tools. They meet the requirements of these and many other similar applications because of their high starting torque and low starting current.

Now these Wagner motors are lighter in weight and smaller in size... are easier to handle and easier to stock because they take up less space. And these motors offer low main-

tenance costs—only a minimum of servicing is required—they give many years of reliable service with unusual freedom from vibration and noise.

Available in repulsion-start or capacitor-start types—open or totally-enclosed—sleeve or ball bearing—with rigid or resilient bases or machined endplates for flange mounting. Write today for Bulletin MU-185 which gives complete information.

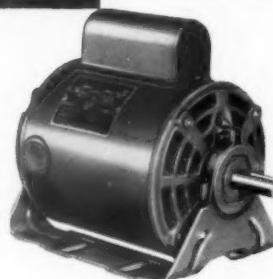
A Complete Line—Single-phase and Polyphase Motors



Type RP, Polyphase fractional horsepower motors. Available in $\frac{1}{6}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, and $\frac{3}{4}$ hp ratings. Rigid or resilient base—sleeve or ball bearing.



Type RA, Repulsion-start induction-run single-phase motors. For applications requiring high starting torque. $\frac{1}{2}$ to 15 hp.



Type RK Capacitor-start. $\frac{1}{3}$, $\frac{1}{2}$, and $\frac{3}{4}$ hp... sleeve or ball bearings. The resilient mounting offers unusual freedom from vibration and noise.



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For More Information Circle No. 335 on Inquiry Card—Page 17



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Your actual fastening costs include four basic items:
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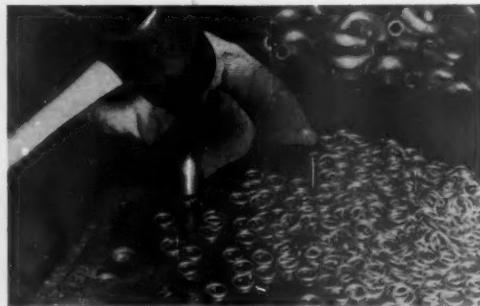
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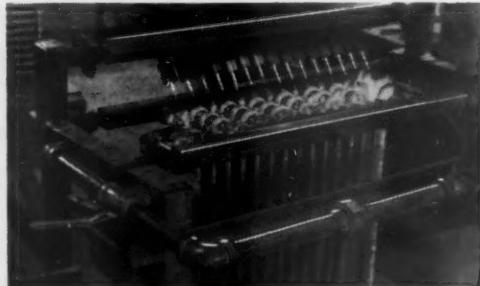
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association news

Cleveland PAs See Business Improving

The latest Business Survey Report of the Purchasing Agents Association of Cleveland is generally optimistic in tone. Business is at a record level and expectations are that it will continue into 1957. The full report follows:

Commodity Prices

Price increases were reported in all commodities except copper and forest products. Ninety-five per cent of the reporting members indicated increases. Steel scrap is reported as hitting an all time high.

Inventories

Depending entirely on the type of industry reporting, the average inventory picture is down. Forty-one per cent report inventory lower but this covers those who are primarily steel users. Other reporting members are apparently in fairly good shape.

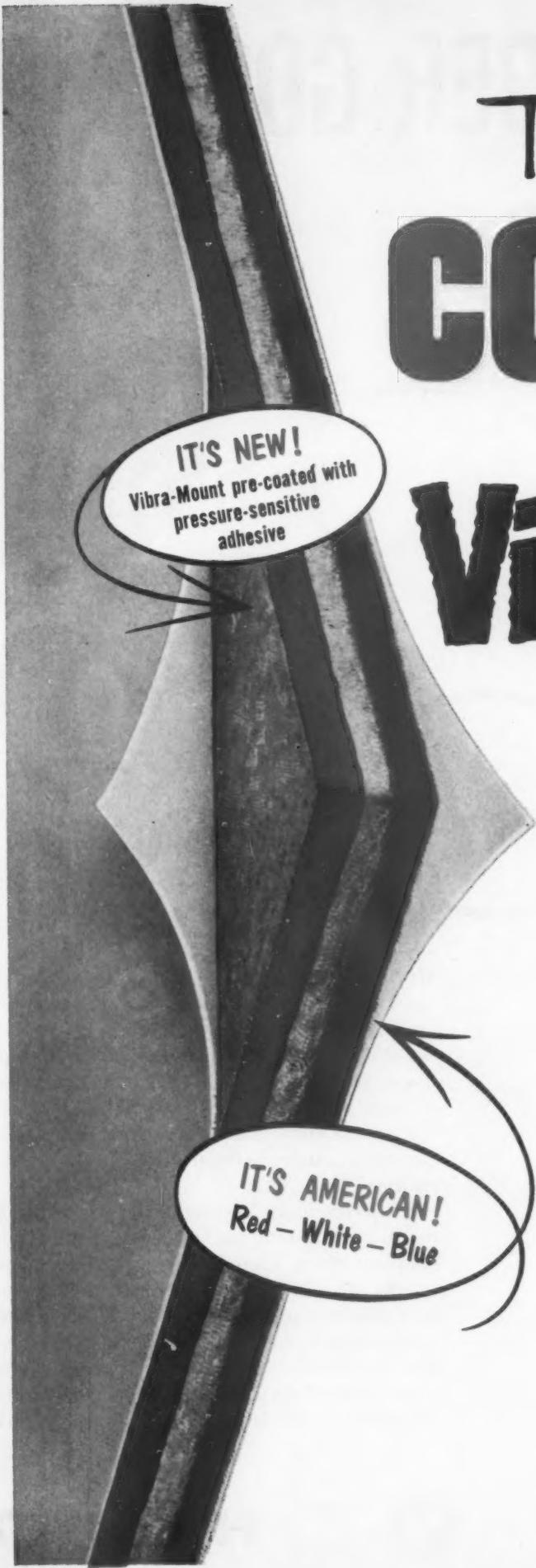
Employment

Employment in the area is up slightly. Twenty-eight per cent report more employees as against 11% in June. Sixty per cent report the same personnel against 75% in June. Shortage of engineers, skilled shop workers and office help continues to plague many industries.

Buying Policy

In spite of the recent steel strike, buying policy on production materials remains in the 60 to 90 day bracket. Sixty-five per cent reported buying on this lead time in June. This figure went up 5 points to 70% in August. Fewer purchasing agents on the average are buying on a six months' basis. MRO supplies are purchased on 30 to 60 day lead with 48% reporting 30 days. This is the same (Please turn to page 276)

For More Information Circle No. 337 on Inquiry Card—Page 17



This FELT can **CONTROL** that **Vibration!**

When machinery has the shakes, put it on Vibra-Mount* Felt. This resilient cushion greatly reduces the amount of vibration transmitted to the floor, as much as 85%. People are happier, buildings safer. Vibra-Mount Felt is long lived because it takes compression with a minimum of set. In almost every case lag bolts are unnecessary, so machines can be rearranged with a minimum of difficulty. Write for FREE booklet, "How to Reduce Vibration." For technical information, ask for Data Sheet No. 10.

*T. M. Reg.

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Hewitt-Robins molded rubber goods are produced to fulfill the specific requirements of original equipment manufacturers. These are *not* standard pieces from stock. Each item produced in our molded rubber goods department is made to the precise specifications laid down by the customer and is manufactured for him alone—is custom-engineered to his requirements.

Such products as pressure cooker gaskets, regulator diaphragms, television parts, flexible coupling discs, bumpers, snubbers, and many others are being manufactured to the most stringent standards of quality. In some cases, molds have already been prepared and a specification established by the customer. In many other cases, Hewitt-Robins development engineers and technicians create a new specification



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YOUR ORDER



on the basis of the use for which the item is designed, the physical attributes it must have and the chemical medium which it will contact.

Of special interest to many manufacturers are the products made from SILICONE RUBBER. This completely synthetic material has proven its ability to provide desirable characteristics under conditions of extreme heat and cold where other rubber materials fail. Molded sheet in various hardnesses are available for packing and gasketing and a complete new SILICONE DEPARTMENT is ready to handle all types of molded products including SILICONE SPONGE and ROLL COVERINGS.

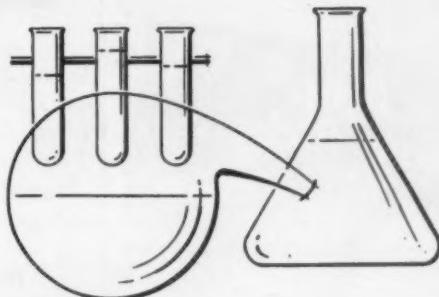
For custom-made molded rubber goods or SILICONE, contact Hewitt-Robins at Stamford, Conn., our technical and production staffs are ready to assist with service and quality.

-ROBINS

OCTOBER, 1956

For More Information Circle No. 339 on Inquiry Card—Page 17

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Hewitt-Robins Quality Control is your guarantee that our products will meet your most exacting requirements. The continuous checking and rechecking, testing and retesting, of every step in the production of integral molded rubber goods leaves nothing to chance. The finished product is the finest that modern industry can produce.

The physical qualities (tensile strength, hardness, elongation, etc.) demanded of the final product determine the ingredients of the initial compound. To assure uniformity of the finished product, the compound is scientifically prepared and mixed. Samples from this batch are tested for GRAVITY, DUROMETER, COMPRESSION SET, SCORCH, ELONGATION, SHRINKAGE, TENSILE, MODULUS, etc.

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Watch Dog*
STARTERS

When a fluorescent lamp reaches the end of its useful life and starts to flicker, the G-E FS-40 Watch Dog starter cuts the lamp out of operation. This protects ballasts and fixture wiring, stops annoying blinking, increases life of starter—makes group relamping more economical.

When relamping, a touch of the red button on the G-E Watch Dog starter instantly lights the lamp, eliminating a waiting period of up to 3 minutes to be sure the new lamp will light. What's more, Watch Dog starters are extremely economical and long-lived . . . will outlast up to 10 ordinary starters.

For a few pennies more, the new FS-400 Watch Dog starter offers all the advantages of the FS-40 plus an added feature. This prevents, in two- or three-lamp fixtures, premature burnout of lead lamps caused by voltage surges before the lamp cathodes are adequately preheated. Wiring Device Department, General Electric Company, Providence 7, R. I.

*Registered Trade-mark of General Electric Co.

GENERAL ELECTRIC

For More Information Circle No. 340
on Inquiry Card—Page 17

association news

(Continued from page 292)
as in June. Capital goods remain at six months to one year but fewer reporters show one year. There is a slight trend toward "hand-to-mouth" buying in this category.

Items In Short Supply

While structural steel, plates and pipes have been critical items for many months, several members report the full impact of the steel strike will be felt in the 4th quarter. Nickel, welding electrodes, some items of small motors and some chemicals are also reported in short supply.

General Remarks

Business continues at a record high level with practically all reporting members looking forward to a record 4th quarter. Others extend this high level well into 1957. We hear that:

- Expected business pattern for balance of year looks excellent.
- Very good—better than anticipated.
- The wave of price increases on iron and steel products is really rolling.
- With the advent of 1957 model cars, expect business to be good through the year.
- Business looks healthy and better feeling now that steel has been settled.
- Expect 4th quarter to return at least to the level of the 1st and 2nd. Do not believe the general price increases will have much effect on this level of business.
- Home appliance and pre-fab homes industries continue to show monthly improvement.

W. E. Gombert, Chairman
Business Survey Committee

**PLEASE USE
INQUIRY CARD—PAGE 17**

District 5 Education Committee Meets

The education committee of the new District Five met at the Sheraton Park Hotel, Washington, D.C., on August 11, 1956. Committee chairmen of seven of the nine associations comprising the district were in attendance under the chairmanship of James M. Berry, Carolinas-Virginia Association. Also present were Frank C. Dengler, Philadelphia Association and district standardization chairman, Philip F. Whitaker, Jr., Washington Association and district public relations chairman, and the officers and board of directors of the Washington Association.

Mr. Berry reviewed the Chicago meeting of the National Education Committee and the efforts of the National Education Committee in increasing the knowledge of purchasing. Each local chairman discussed a phase of the educational program of the National Association and then led a round table discussion on the subject.

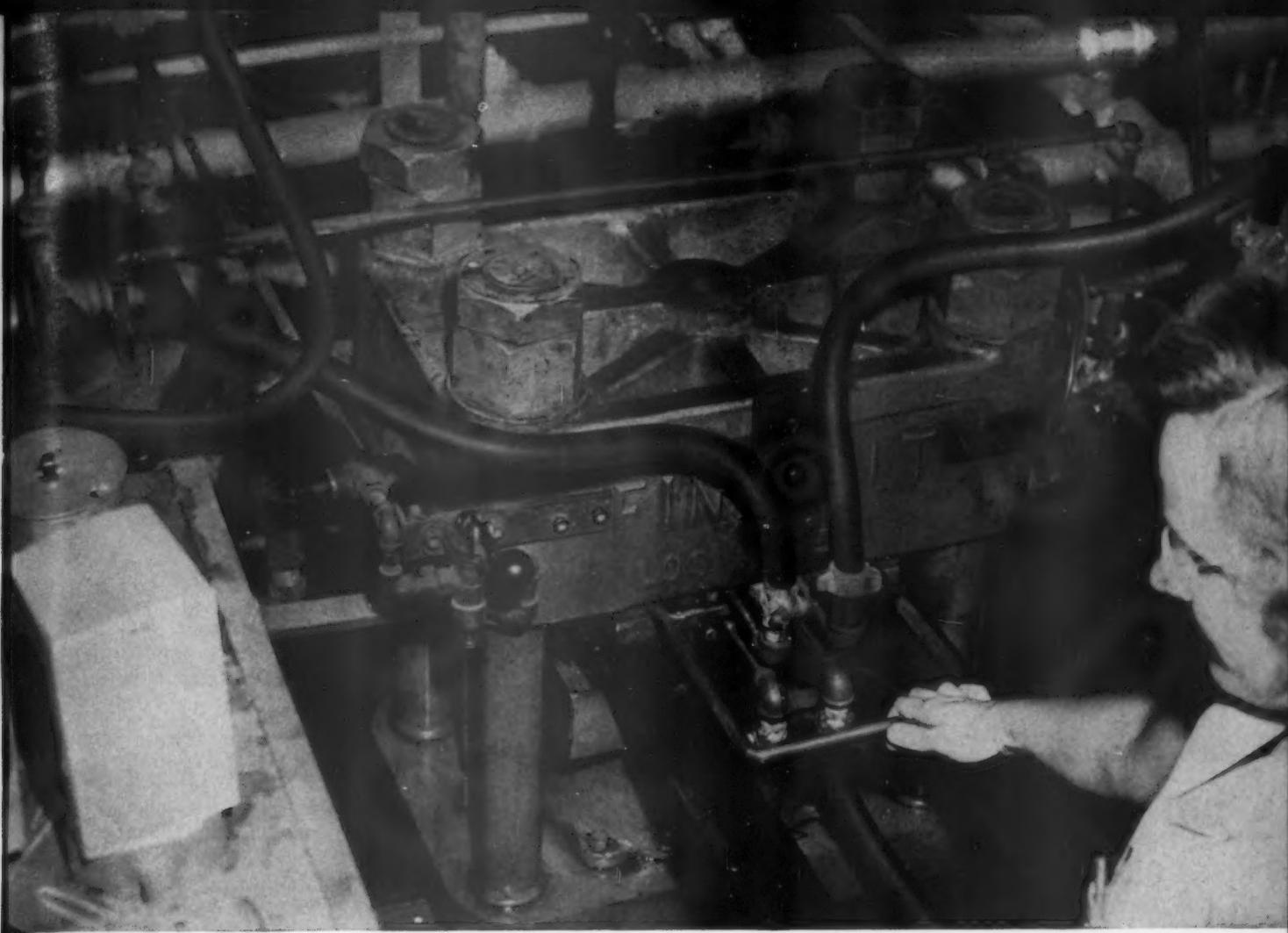
Mr. Dengler discussed the role of standardization in education programs and presented several examples of early efforts at standardization. Mr. Whitaker covered the public relations aspects of education in association work and ways in which to make present and potential members and management aware of the education committee's work.

Lancaster P. A.s Play Golf, Have Banquet

On September 11, the Purchasing Agents' Club of Lancaster held its Third Annual Golf Tournament and Banquet at the Conestoga Country Club. Golfers teed off in tournament play between noon and 2:30. Some of them were in top form; others enjoyed themselves.

The tired and happy golfers had a chance to recuperate at the "The Hour of Charm" at 6:00 PM. This was followed by a "T-Bone Steak Dinner With All The Trimmings."

For More Information Circle No. 341
on Inquiry Card—Page 17
PURCHASING



Here's a Record Making Hose!

Every 30 seconds superheated steam follows ice water—and Thermoid Hose outlasts all others



There's a Thermoid Conveyor Belt



... and Matched Multi-V Belts for every industrial need.



In manufacturing phonograph records, Plastic Products Company, Memphis, uses Thermoid Wire Braid Steam Hose to carry steam into its molds at 375° F. under 175 lb. pressure. Every 30 seconds, the steam is followed by icy cold water—*through the same hose!* This hot and cold cycle goes on eight hours a day, month after month.

Thermoid outlasted every other hose tried by this record maker.

Here is another example of how Thermoid Personalized Service fulfills special demands. To meet the most exacting requirements of any plant application, your Thermoid Distributor carries a complete line of Hose, Conveyor Belting and Multi-V Belts.



Thermoid Company, Trenton, N. J.



Spikes reduce slipping on ball diamonds,



but ordinary shoes are SAFE SHOES on low cost A.W. SUPER-DIAMOND

ECONOMY ROLLED STEEL FLOOR PLATE

Ordinary flat-soled shoes—material-handling equipment, too—move safely over SUPER-DIAMOND's traction treads—from any angle of approach. The raised diamond pattern—40 steel diamonds to the step—has been exclusively designed and engineered for maximum foot safety at minimum cost.

No other floor plate can match A.W. SUPER-DIAMOND for safety, durability and easy maintenance at so low a cost.

Write for detailed information.

- No matching problems
- Easily fabricated
- Fast installation
- Cleans, drains rapidly
- Takes years of abuse

A.W. SUPER-DIAMOND ROLLED STEEL FLOOR PLATE

"The diamond in the rough . . . a gem of a flooring."

ALAN WOOD STEEL COMPANY

Conshohocken, Pa.

Please send A.W. SUPER-DIAMOND Booklet SD-12

Name _____

Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Other products: A.W. ALGRIP Abrasive Rolled Steel Plate—Plates—Sheets
—Strip—(Alloy and Special Grades)

For More Information Circle No. 342 on Inquiry Card—Page 17

For plants where oil, water and grease raise special problems of slipping accidents, we suggest a check on the special qualities of A.W. ALGRIP . . . the world's only abrasive rolled steel flooring.



**association
news**

Georgia Group To Provide Speakers

To make industry and business in general aware of the value of good purchasing policies and practices, the Purchasing Agents Association of Georgia will have speakers from among its members available for meeting of various civic groups.

The panel of speakers is being selected at the recommendation of the Public Relations Committee with approval of the membership. A television panel is also under consideration.

The Georgia group, at its recent meeting, enjoyed an address by C. Warner McVicar, director of purchasing and traffic of Rockwell Manufacturing Company, Pittsburgh, Pennsylvania. Mr. McVicar's talk was entitled "The Value of a Purchasing Manual to Purchasing and Management." Members present received valuable information based on the experience of Mr. McVicar and the Rockwell Manufacturing Company in establishing sound purchasing policies and procedures.

New Orleans Starts Season

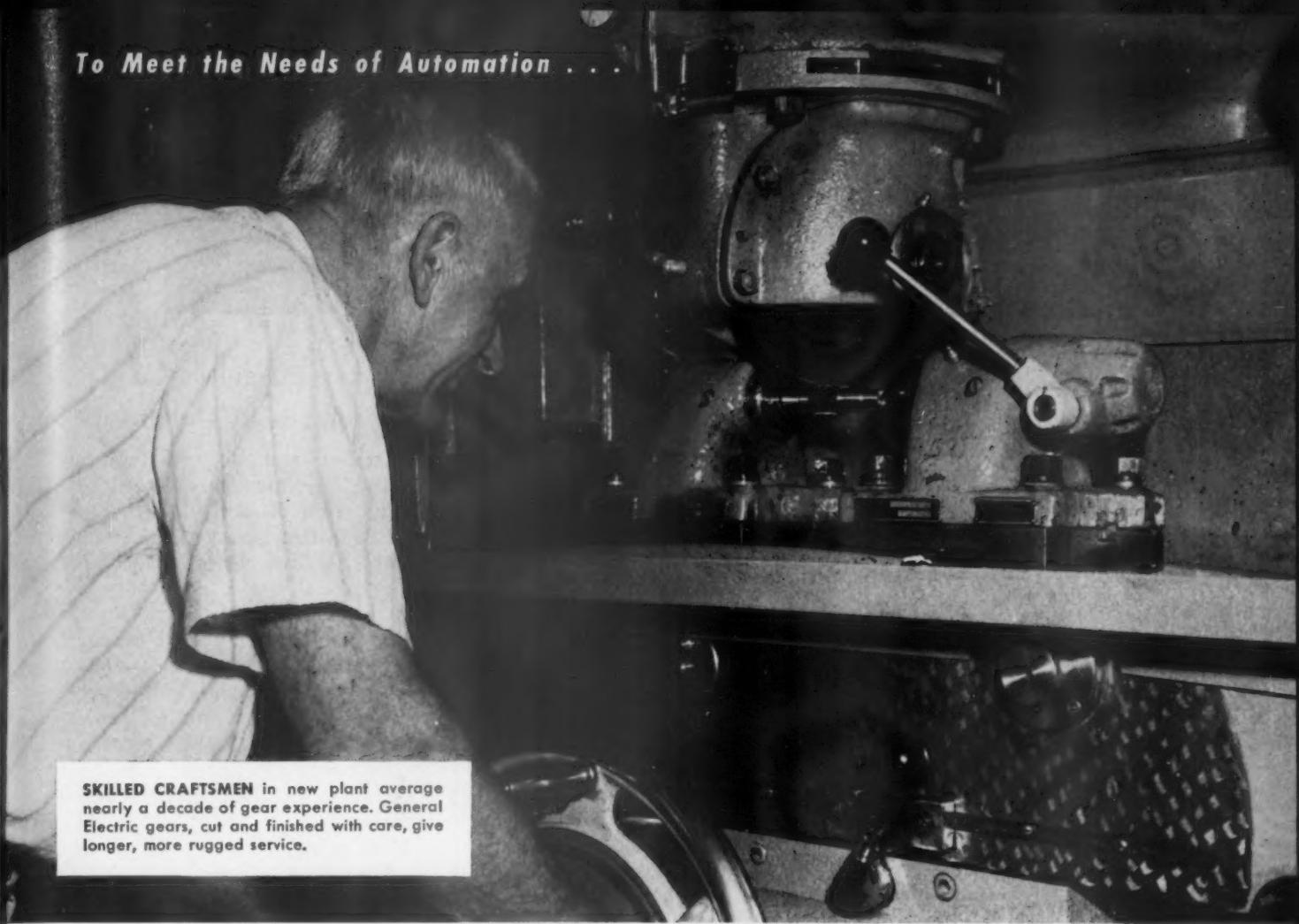
Robert W. French, former dean of the College of Commerce of Tulane University was the guest speaker at the recent meeting of the Purchasing Agents Association of New Orleans.

Mr. French is now director of the Port of New Orleans. His topic was, "College of Commerce and the Purchasing Profession," a subject in which all members were interested.

The following week a visit was made to the local plant of Continental Can Company. George Adams, chairman of the Plant Visitation Committee arranged the trip and everything went off very smoothly.

For More Information Circle No. 343
on Inquiry Card—Page 17
PURCHASING

To Meet the Needs of Automation . . .



SKILLED CRAFTSMEN in new plant average nearly a decade of gear experience. General Electric gears, cut and finished with care, give longer, more rugged service.

At General Electric's NEW Gear Motor and Transmission Components Department . . .

3618 man-years of manufacturing know-how assure fast service on low-speed drives

To meet the increased demand for low-speed drives, General Electric's new decentralized Gear Motor and Transmission Components Department will be devoted solely to the design and manufacture of mechanical power transmissions.

Specialized Attention—Highly trained and experienced gear-motor engineers and skilled craftsmen with over 3600 man-years of experience are available to help solve your low-speed drive problems. They are ready to give you fast, dependable G-E service on standards, on specials, and on new gear-motor products.

CONTINUOUS TESTING provides data for quality control, new designs and developments. Here, an involute measuring instrument records wear, under simulated tortuous conditions, to nearest ten-thousandths of an inch.

•Complete Line Available—General Electric offers a complete line of gear-motors—induction, synchronous, wound rotor, d-c gear-motors—in all types and enclosures, from 1/100 to 200 hp. The new department will also give you rapid service on special needs such as adjustable speed, braking, special mounting or special insulation.

•Fast Service—The expanded gear-motor facilities allow quantity production and shorter manufacturing cycles. Machine tools in the new factory are designed for high volume precision work and are

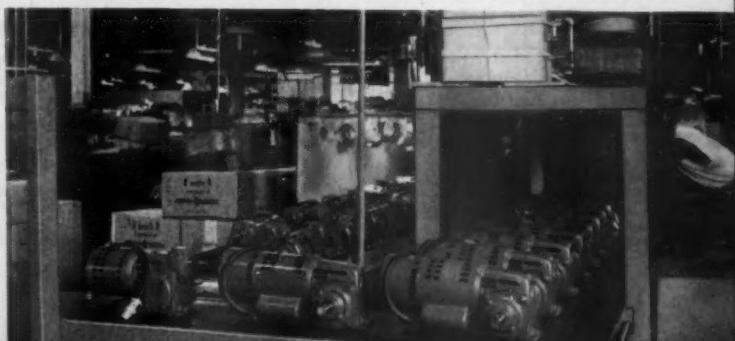
readily adaptable for the production of specials built to your specifications.

•For More Information—Write for bulletin GEA-6027, Section 851-2, Schenectady, N. Y., or contact your G-E Apparatus Sales Office or gear-motor supplier. Gear Motor and Transmission Components Department, General Electric Co., Paterson, N. J.

Progress Is Our Most Important Product

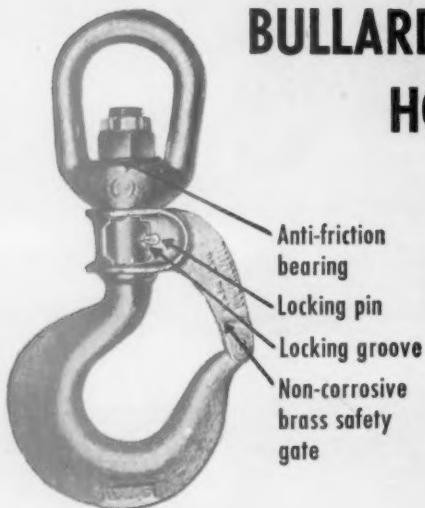
GENERAL ELECTRIC

QUANTITY PRODUCTION of complete line of G-E gear-motors from 1/100 to 200 hp, in all types and enclosures, assures prompt customer service. Specify General Electric for all your low-speed drive needs.



Bullard Safety Buyer's Guide

BULLARD-BURNHAM HOOKS



At last a 100% safe hook for every type of equipment; utility and chain hoists, horizontal tuggers, come-a-longs, cranes, block and tackle or snatch blocks. Safety gate automatically locks closed. It cannot be disengaged accidentally. A touch of the finger will release catch to open gate. Available to 50,000 lb. capacity. Write for technical data.

RED IS FOR RIGGER

Bullard's process for manufacturing permanent molded-in colors in glass fiber safety hats and caps has developed a new trend in purchasing head protection. Many industries are selecting hats or caps with a different color for every crew. Red might be for riggers, blue for carpenters, green for safety, yellow for electricians. All colors are available.



CLEAN COMPRESSED AIR PROTECTS MEN AND MACHINES



Give pure air to workers wearing air-supplied hoods, helmets or masks. Bullard compressed air purifiers remove dust, moisture, and oil fumes from compressed air making it completely safe for breathing.

These purifiers will also rapidly pay for themselves by eliminating grit and dust that damage delicate parts of compressed air tools, and by supplying moisture-free air for fine quality lacquering and enameling.

Three sizes available . . . 10 to 150 cubic feet per minute of clean air.



see our catalog in



or write for copy



New safety equipment catalog now available . . . write for it!

BULLARD

E. D. BULLARD COMPANY • 275 Eighth St., San Francisco, California

For More Information Circle No. 344 on Inquiry Card—Page 17

association news

Los Angeles PA Speaks at Dallas

Members and guests of the Purchasing Agents Association of Dallas were pleased to have Gilbert B. Mirus, general purchasing agent, Wilco Company, Los Angeles, California speak at a recent meeting.

Mr. Mirus chose "New Horizons in Purchasing" as his topic. Twenty years of purchasing experience, in addition to being current chairman of the education committee of the Los Angeles Association more than qualified him for the task.

Most purchasing agents in the southwest area are now looking forward to the Southwest Purchasing Conference to be held in Fort Worth on November 7 and 8, 1956.

N.A.P.A. Appointments

A. J. Melka, Hydraulic Dredging Company, Ltd., Oakland, California, has been appointed to the Committee on Programs in local associations of the National Committee on Education. Mr. Melka will work under the direction of Chairman Warner McVicar in developing suggested programs for forums and regular meetings.

J. K. Gillenwater, Tennessee Eastman Company, Div. of Eastman Kodak Company, Kingsport, Tennessee is the new regional chairman of the southern region of the National Committee on Coal. The southern region covers Alabama, Florida, Georgia, Mississippi and Tennessee.

H. R. Crandall, Carbon County Railroad Company, Salt Lake City, Utah, has been appointed a member of the far west region of the National Committee on Coal. Mr. Crandall will report

(Please turn to page 284)
For More Information Circle No. 345
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PURCHASING

What are your refractory castable problems



- High Temperatures?
- Abrasion and Erosion?
- Slag Attack?
- Overhead Applications?
- Insulating Properties Required?

B&W makes a wide range of specialized refractory castables. Whatever your problem, you will find helpful data in B&W Bulletin R-35. Send for your copy today.

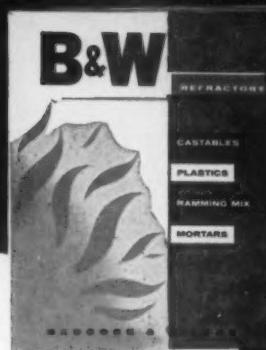
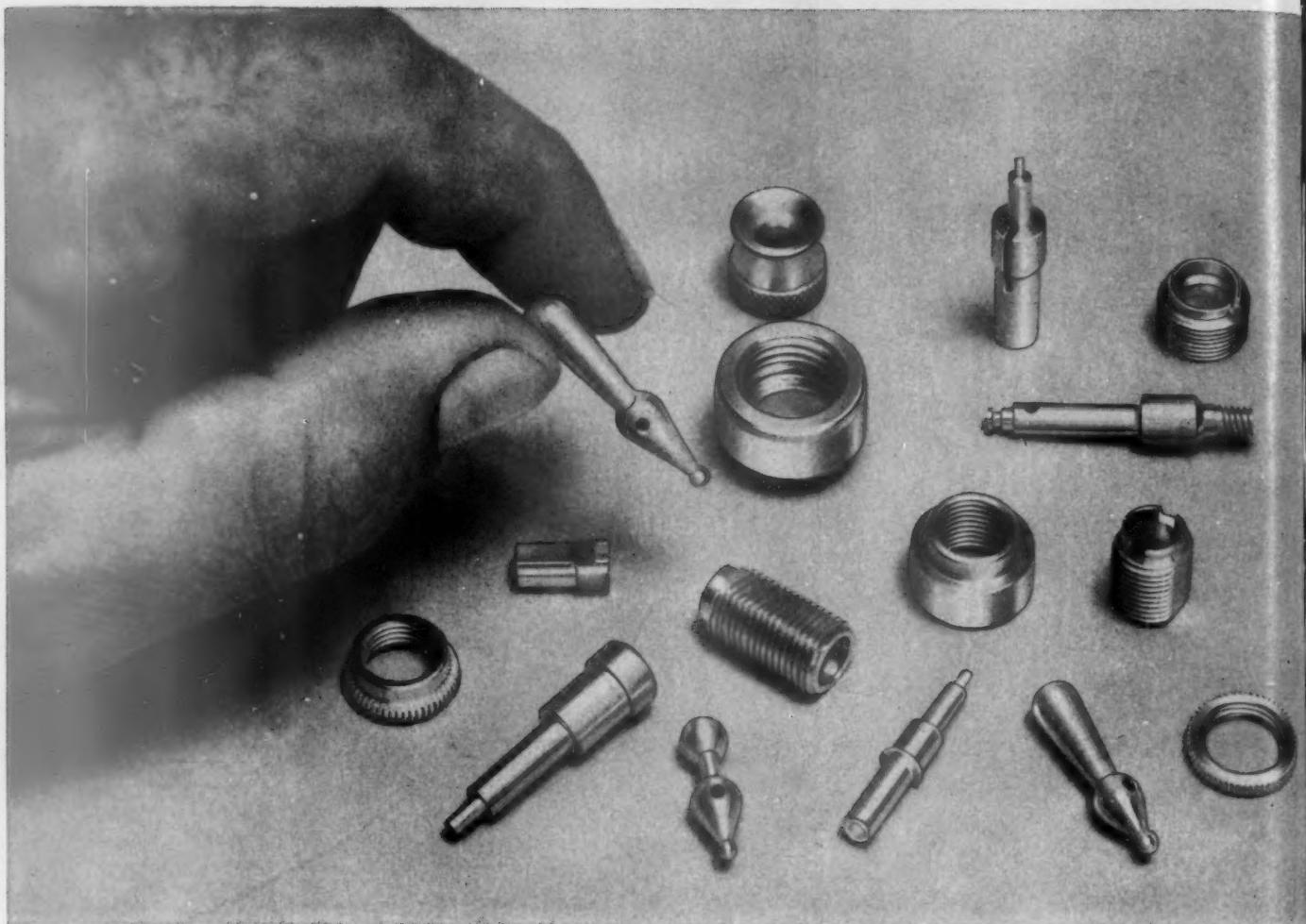


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B&W REFRactories PRODUCTS: B&W Alum Firebrick • B&W 89 Firebrick
 • B&W Junior Firebrick • B&W Insulating Firebrick • B&W Refractory Castables,
 Plastics and Mixtures • B&W Silicon Carbide





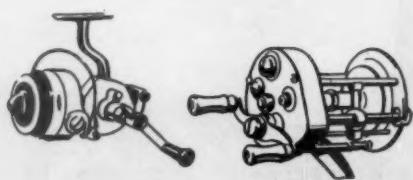
Typical parts made of Alcoa Aluminum Screw Machine Stock by Enterprise Mfg. Co.

HOW PFLUEGER* MAKES MORE AND BETTER REELS WITH ALCOA® ALUMINUM SCREW MACHINE STOCK

Since Civil War days, 3 generations of Pfluegers have parlayed a small harness business into the giant Enterprise Manufacturing Company of Akron, Ohio . . . one of the world's foremost makers of fishing tackle. Alcoa Aluminum Screw Machine Stock has contributed to the sales appeal of Pflueger reels since 1929.

The Pflueger success story is typical of the competitive advantages frequently gained by a switch to aluminum screw machine stock. Its free-machining qualities speed production by permitting operations at maximum spindle speeds . . . with less tool breakage, fewer rejects, better finish with fewer secondary operations. It has longer tool life, provides three times as many parts per pound of metal. And abundant supplies are available.

All these solid economic advantages point up the wisdom of a hard commercial look at aluminum screw machine stock. Alcoa will provide you with technical assistance, alloys information, and the greatest store of experienced counsel available in the industry. Just call your nearby Alcoa sales office, listed under "Aluminum" in your phone book. Aluminum Company of America, 867-K Alcoa Building, Pittsburgh 19, Pennsylvania.





IN PURCHASING

Wayne Miller, Director of Purchasing, says,

"Pflueger reels have used aluminum parts since 1929 . . . and we've always bought our metal from Alcoa. Alcoa's personnel have always been most cooperative. Their shipping dates and promises always hit together. We especially like the shipping notices Alcoa forwards to us. Tolerances and composition always meet our most exacting specifications. Engineering help and warehouse service continue to keep us happy."



IN DESIGN

Mr. Tom Sarah, Chief Engineer of Design and Development, says,

"Our annual sales conference guides design policy. Customers began to insist on lightness; we were given the job of lightening up while still maintaining quality and dependability. Aluminum looked like a natural . . . and was. It takes the high-quality finish we require. It offers the corrosion resistance so essential when our reels are used in salt-water fishing. And Alcoa's research and development facilities were a great help to us in selecting proper alloys and finishes. We will be using more and more aluminum parts."



IN PRODUCTION

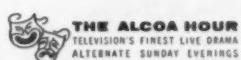
Garnett Young, Foreman, in discussing production with operator John Schmidt (left), says,

"Many of our workers are women and aluminum's light weight eases our materials handling. We get longer tool life and can hold closer tolerances on operations such as drilling, milling, tapping and machining. We cut fine-pitch threads and we prefer aluminum for this more than any other metal. Because aluminum is easier on tools, we get less heat and can use lighter oils. With aluminum, we have no trouble with concentricity. We run at top spindle speeds. There's less chip trouble and we get high prices for our scrap. If trouble develops, Alcoa sends engineering help to straighten us out in a hurry."



IN OUTSIDE SUPPLY

Some parts of the famous Pflueger reels are made by Locke Machine Company of Cleveland, Ohio. (Member of the National Screw Machine Products Association.) Here Mr. A. W. Glasheen, Estimator; Mr. J. E. Tomer, Vice President and Mr. E. H. Baker, Factory Manager, discuss the finish requirements of a Pflueger reel. They say, "Pflueger demands tight tolerances and a superfine surface finish. We find it easy to comply by using Alcoa Aluminum Screw Machine Stock. Tool life is good and we use extremely heavy machine feeds. Concentricity requirements are close, but we maintain them with aluminum. Our operators like to work with aluminum and we like to deal with Alcoa. Service has been extremely prompt, and their quality is excellent. We feel it is the best on the market. We have never had to reject Alcoa Screw Machine Stock."



Your Guide to the Best
in Aluminum Value





THE BEST BARREL CYLINDER EVER MADE

After 13 Months Of Three-Shift Usage This
Udylite Tempron Cylinder Shows Little Wear

This unretouched photograph shows a Udylite Tempron Barrel Cylinder which has been in use for thirteen months, most of the time in a "round the clock" operation. This cylinder looks like new.

Seams are tight and there is no warping although it has processed thousands of heavy loads of work through a complete cycle of *electro-clean, acid pickle, zinc plate, bright dip or dichromate and hot and cold rinses*. Most of these loads have been beyond our guarantee of 200 pounds per 14" x 30" cylinder.

In January, 1955 and after two years of exhaustive tests, Udylite formally introduced the Tempron Barrel Cylinder as the most efficient and long lived plating barrel ever offered. The vitality of Tempron and the durability of Udylite construction has now been convincingly proven in hundreds of operations.

During a recent twelve month period, a set of Udylite Tempron Barrel Cylinders has processed millions of pounds of work, mostly through the complete zinc cycle. Any measurement of wear is almost impossible.

Udylite Tempron Cylinders withstand, even under load, the highest temperatures used in plating. Withstand stronger acids. Have greater resistance to abrasion and can be used through the entire plating cycle.

Let us tell you more of the advantages of Udylite Tempron Cylinders or show you "on the job" examples. Write us today.

THE
Udylite
CORPORATION
DETROIT 11, MICHIGAN

WORLD'S LARGEST
PLATING SUPPLIER

association news

(Continued from page 280)

under the direction of Regional Chairman W. C. Allen.

William T. Reynolds, Los Angeles Transit Lines will head public relations activities for District One. The assignment covers Arizona, California, Oregon, Utah, Washington and Hawaii.

L. V. Blinn, Northwest Paper Company, Cloquet, Minnesota, has been appointed regional chairman of the upper lakes region of the National Committee on Coal.

Products Show For Midwesterners

The Purchasing Agents Association of Central Iowa will sponsor Iowa's second all-industry Products Show with its display of industrial products on Thursday and Friday, October 18 and 19, in Veterans Memorial Auditorium in Des Moines, Iowa.

Approximately 140 manufacturers and suppliers of materials, equipment and supplies for industrial and commercial use will have exhibits.

Exhibits will occupy 212 units of exhibit space, compared with 170 last year; making complete use of the approximately 50,000 square feet of exhibition area in the main arena of the auditorium.

Admission will be free, but by ticket only. Advance distribution of tickets has been concentrated on industrial and commercial personnel interested in the selection and purchasing of products. Interested persons who have not received tickets may obtain them free by writing to The Products Show, Box 1057, University Place Station, Des Moines, Iowa.

Success of the exposition in every respect is assured, accord-
(Please turn to page 286)

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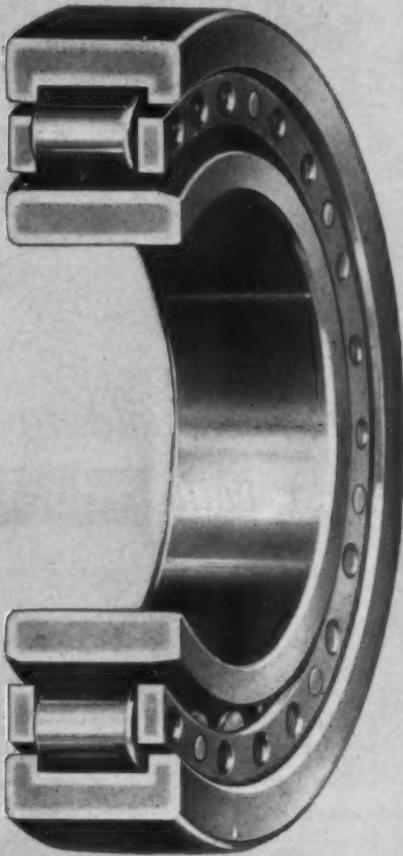
No job too little . . . or none too tough for BOWER STRAIGHT ROLLER BEARINGS

**A complete line,
a wide range
of sizes to fit your
specific needs**

Square pegs weren't made for round holes. And aircraft bearings aren't built for farm equipment, either. That's why Bower designs a complete line of straight roller bearings—a line broad enough to meet any product requirement.

Jet planes break the sound barrier . . . need bearings that'll keep pace. So Bower aircraft bearings are engineered with exactness and precision to tolerances held to millionths of an inch. Bower tractor bearings, on the other hand, are built for ruggedness . . . to take heavy loads and real punishment, day after day, month after month.

Bower Roller Bearings are proved performers in every field, for any straight roller bearing application. From motors to earthmoving equipment, they're on the job—cutting maintenance and downtime, setting new standards of efficiency and economy. Get details on the complete line from a Bower engineer.



Tapered, Straight and Journal Roller Bearings for every field of transportation and industry



BOWER

ROLLER BEARINGS

BOWER ROLLER BEARING DIVISION

• FEDERAL-MOGUL-BOWER BEARINGS, INC., DETROIT 14, MICHIGAN

For More Information Circle No. 348 on Inquiry Card—Page 17

OCTOBER, 1956

285



*the new molding material that's
both **TOUGH** and **GENTLE***

Ace-Hide is a new rubber-plastic molding material designed to take a beating without showing it. Its toughness, smoothness, resilience and excellent chemical resistance have already led to wide-spread use for things like chair arm pads, scuff guards, acid pails and golf bag tops.

Ace-Hide is a special blend of rubber with plastic, hence is light in weight and has good electrical and thermal insulating properties. Rigidity and impact strength (to 10.0 Izod) can be varied to suit. Takes inserts well. Surface is smooth, shiny. Does not develop flexing cracks, and ages well. Ace molding facilities offer wide range of sizes and shapes. We'll be glad to make specific recommendations. Write today.

Ace-Hide and many other hard and soft rubber, plastics, and rubber-plastic blends are described in 80 pg. ACE Handbook. Write for your copy today!



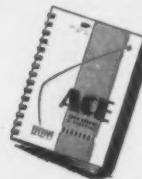
Ace-Hide acid pail



Molded top for golf bag



Large molding is lid for beverage cooler



ACE rubber and plastic products

AMERICAN HARD RUBBER COMPANY
93 WORTH STREET • NEW YORK 13, N. Y.

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association news

(Continued from page 284)

ing to Donald R. Foster, of Midwest Metal Stamping Co., Kellogg, Iowa, chairman of the show committee; and A. W. Baldock of Globe Machinery and Supply Co., Des Moines, show manager.

Product shows in Des Moines and St. Louis are the only expositions of this type between the Mississippi River and the Pacific coast. The exposition will be open from 1 to 10 p. m. both days, October 18 and 19.

Besides Chairman Foster, members of the show committee are James M. Casey of the C. E. Erickson Co., Des Moines and W. L. Howlett of the Firestone Tire and Rubber Co., Des Moines.

Buffalo PAs Entertain

The Purchasing Agents Association of Buffalo recently held its 24th annual picnic and entertained an overflow crowd of 790.

This annual event provides an opportunity for member purchasing agents and their families to get together with the salesmen from the area and their families.

During the afternoon, refreshments were available while a high-scoring softball game and races served to keep everyone's interest alive.

The day was topped with a delicious dinner and dancing to music provided by the orchestra of the Buffalo Automobile Club, where the picnic was held.

Dayton Hears Top Executive

The first fall meeting of the Purchasing Agents Association of Dayton, Ohio was held at the Van Cleve Hotel in September.

Guest speaker for the occasion was H. Thomas Hallowell, Jr. (Please turn to page 290)

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PURCHASING

COLD-ROLLED SPRING STEELS



WALLACE BARNES STEEL DIVISION
ASSOCIATED SPRING CORPORATION
BRISTOL, CONNECTICUT

ALSO MAKERS OF SPRINGS — WIRE FORMS

SMALL STAMPINGS



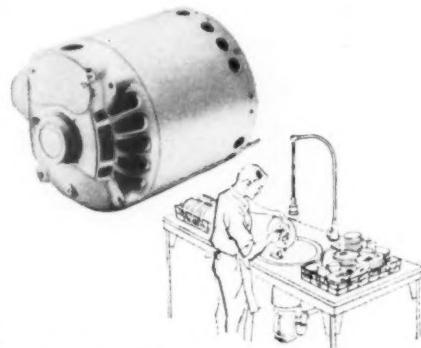
Which of these Customized motor features will improve your product design?



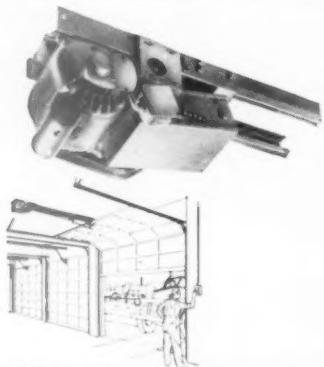
SILHOUETTE: J&H fits a motor to your dimensions. Example: A special low-silhouette motor enables a manufacturer to market a floor polisher that operates under furniture and fixtures.



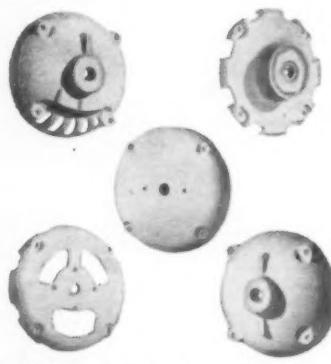
NOISE LEVEL: J&H builds motors with very low decibel levels. Example: Restaurant and store patrons are never annoyed by this super-quiet meat slicer using a special J&H motor.



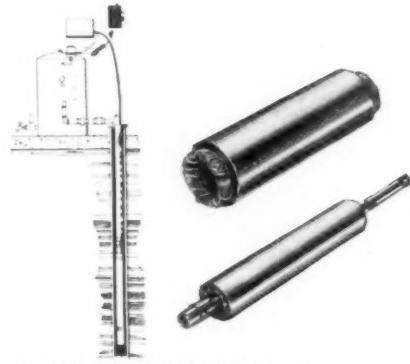
ENVIRONMENT: J&H can meet your most critical environment specs. Example: Commercial food disposers operate under high heat and humidity. Special J&H features keep motor running cool.



TORQUE: J&H matches a motor to your torque curve. Example: Automatic doors call for fast, dependable starts and stops, instant reversing. J&H-engineered windings guarantee performance.



STYLING: J&H blends a motor into your design with special contours and finishes. Example: These typical J&H end bells can be used to improve a product's appearance, enhance sales appeal.



UNUSUAL CONDITIONS: J&H designs motors or components to new, unusual conditions. Example: Deep-well submersible pump motor gives trouble-free service hundreds of feet underground.

Design your product to do a job . . . not to fit a motor

Eliminate the size, shape and performance limitations of standard motors. Take a tip from these typical manufacturers who are designing more efficient and attractive, easier-to-sell products by using J&H *Customized* motors. Check your specific application needs with our motor engineers. Write Jack & Heintz, Inc., 17628 Broadway, Cleveland 1, Ohio.

SEND FOR FREE BOOK

"When to Specify Special Motors" . . . a valuable 20-page design guide. Includes charts, tables, drawings, specifications, case histories . . . all factors to answer your most searching questions. Write to Jack & Heintz today!

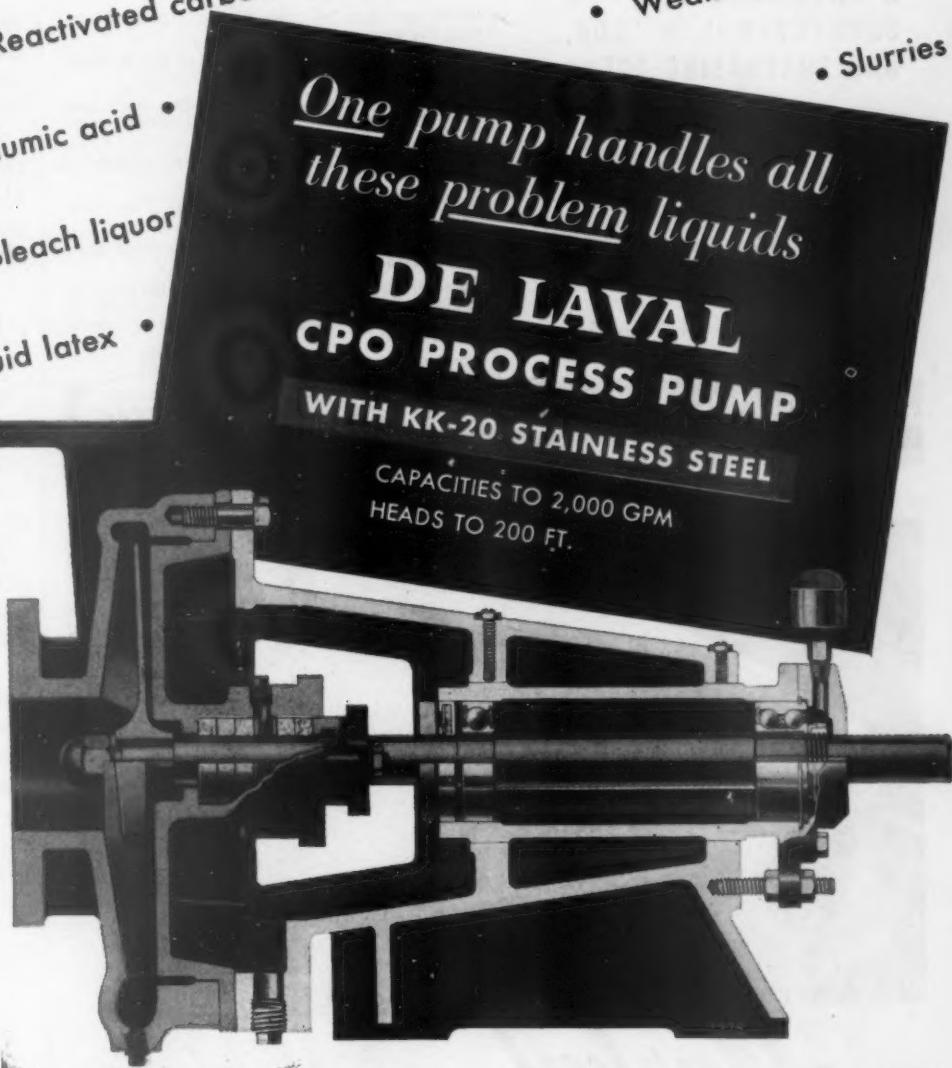


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JACK & HEINTZ CUSTOMIZED ELECTRIC MOTORS

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- Soap solution • Calcium hypochlorite
- Water containing abrasive particles • Carbon slurry • Ferric hydroxide
- Soap solution containing sand and ground glass • 25% grape juice concentrate
- 50% caustic soda • Ferric sulphate • Ammonium sulphate • Demineralized water
- Trisodium phosphate • Reactivated carbon • 1% chlorine solution • Sulphuric acid
- 10% chromic acid • Humic acid
- Waste sulphite liquor • Bleach liquor
- Acid mine water • Liquid latex
- Alkylaryl sulfonate
- Sodium hydroxide
- Calcium hydroxide
- Calcium bisulphite
- Calcium hypochlorite
- Demineralized water



WRITE FOR
BULLETIN
1125-B



The De Laval CPO Process Pump has stainless steel parts where it comes in contact with the liquid. The casing, end head, stuffing box, impeller, seal ring and gland are all of De Laval KK-20 (20-28 stainless with molybdenum and copper). The shaft and lock nut are made of other

suitable stainless steels. • Three bearing pedestals accommodate nine wet end sizes. Off-the-shelf parts in ferrous and non-ferrous combinations permit changing size or metallurgy after installation. CPO pumps are available with both conventional packing and mechanical seals.



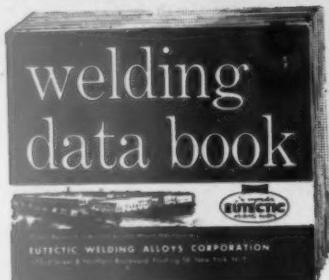
DE LAVAL Centrifugal Pumps

DE LAVAL STEAM TURBINE COMPANY

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For More Information Circle No. 352 on Inquiry Card—Page 17

REGISTERED TRADEMARK



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168 PAGE GUIDE TO
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- Thousands of suggestions for added time and money savings through welding for every industry.
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- New ways to increase weld strengths and cut down amount of alloy used.
- Procedures for improving on the best welding results possible with conventional materials by selection of the more than 160 Eutectic "Low Temperature Welding Alloys."®

(Continued from page 286)
president of The Standard Pressed Steel Company, Jenkintown, Pennsylvania. His topic was "Specials Can Be Licked."

The talk was enthusiastically received by the entire membership and the large turnout indicated the interest in the association activities.

Frank Crotty, Van Dyne Crotty Company and Gene O'Neill, Monarch Marking System Company were elected to membership in the association.

Rochester PAs Sponsor University Course

The Purchasing Agents Association of Rochester is again sponsoring a two semester course in purchasing at the University of Rochester, University School.

The course covers policies and procedures, including quality control, value analysis and market analysis.

J. W. Averill, chairman of the educational committee, has arranged to have the association offer a prize as in previous years. The second semester tuition will be paid for the student having the highest class average in the first semester.

New Yorkers Hear Better Business Bureau Executive

The executive board of the Metropolitan Purchasers Club of New York held regular meetings during the summer to plan a worthwhile program for fall meetings.

The first meeting, which was held recently, proved that their work was beneficial. Principal speaker for the evening was George L. Fichtenbaum of the New York Better Business Bureau. Mr. Fichtenbaum spoke

(Please turn to page 292) ...

Write for complete technical information and free sample... important that you state conditions.

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association news

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HIGH SPEED STEEL

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They cut easily...resist

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DISSTON 
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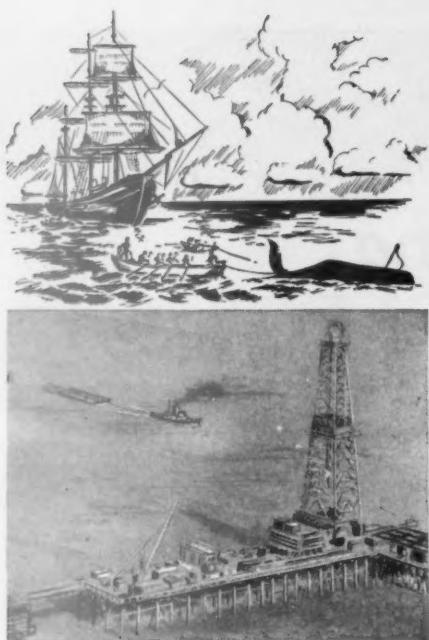
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NEW BEDFORD, MASSACHUSETTS
Serving the Maritime Industry Since 1842
 For More Information Circle No. 356
 on Inquiry Card—Page 17

association news

(Continued from page 290)

on, "How the Better Business Bureau can serve the purchasing agent." Many members left the meeting with a much better understanding of the Bureau and how it can help them.

Andrew Clay, publicity chairman, was the recipient of the George E. Henry Memorial Award, given in the name of a former associate editor of PURCHASING Magazine.

Gentlemen:

During the past year we have experienced several increases in the price of both raw material and finished products. The..... Department of..... is attempting to absorb these rising costs and therefore hold inflation to a minimum. To do this, however, it is necessary for us to know in advance any price changes that may be effected within the next twelve (12) months. If you have not already done so, may we ask that you forward this information to us accordingly.

Very truly yours,
 P. S. Any suggestions you may have relative to economical purchasing will be welcomed.

BOOK REVIEWS

Traffic Department Organization

by John H. Frederick
 Chilton Co. \$6.00

In many companies, the purchasing and traffic functions are combined. In such cases, it's of course essential that the P. A. not only know the traffic function thoroughly but constantly be on the look out for ways in which to improve it. Even when the P. A. isn't directly connected with traffic, knowledge of the subject is useful because of the close relation of traffic with purchasing. In *Traffic Department Organization*, Dr. Frederick uses case histories of how large and small firms handle traffic problems at savings of millions of dollars per year. He outlines the functions of traffic management, how it fits into the organization, its responsibilities, and the maintaining of centralized control. Dr. Frederick's book is a useful addition to any P. A.'s library since it covers a subject that has often been neglected in the past by writers on management problems and methods.

(Please turn to page 296)

Holding the Price Line

The contribution purchasing can make toward holding the price line is illustrated by a letter recently sent to vendors from the purchasing department of one large company. It reads:



Made
for the tough
spots . . .



O-B bronze valves are built for severe service by a manufacturer who has been making quality bronze valves since 1888. If you're having valve troubles, why not try O-B valves? Ask your distributor about them.



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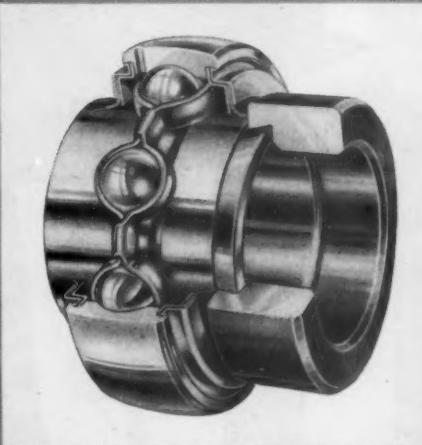
NEW! Fafnir Wide Inner Ring Ball Bearings with PLYA-SEALS . . . contact type

A most important feature

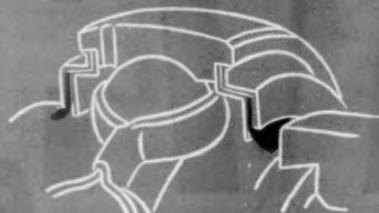
... on slow-speed
applications
where service
conditions
are excessively
dirty and moist



RAK, RAS Pillow Blocks
(Standard Series)



RCJ Flange Cartridges
(Standard Series)



Plya-Seal Construction

— for wide inner ring ball bearings. A synthetic rubber, contact-type seal located between two "dished" steel plates for extra rugged support.

With the addition of this version of PLYA-SEALS to the Fafnir line of wide inner ring ball bearings, you can be more selective in the type of sealed bearing you specify and install. Where service at slow to moderate speeds demands most effective protection against contaminants, especially air-borne dust, dirt and grit, the Plya-Seal type offers the advantages of contact seals, tested and proven by years of service.

Plya-Seal Wide Inner Ring Bearings are optional on the standard series Pillow Blocks and Flange Cartridges. They are dimensionally interchangeable with the

Fafnir Mechani-Seal. Flared lip and clearance between inner supporting seal member and inner ring O.D. keeps seal from pushing in. Plya-Seals do not absorb contaminants, thus their surface won't glaze and lose its efficiency. *Fafnir Wide Inner Ring Bearings equipped with Plya-Seals are relubricatable!*

Here's an opportunity to improve operations, reduce servicing, eliminate loss of lubricant, provide the most effective protection from contaminants. For new Bulletin on Plya-Seal Wide Inner Ring Ball Bearings, ask your Authorized Fafnir Distributor or write The Fafnir Bearing Co., New Britain, Conn.

FAFNIR
BALL BEARINGS

MOST COMPLETE LINE IN AMERICA

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294

For More Information Circle No. 359 on Inquiry Card—Page 17→
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On air intakes, fuel lines, exhaust lines, Penflex Flexible Tubing has proved itself in plants across the nation. Rugged . . . tough . . . flexible Penflex Tubing is made to stand the most severe usage.

From $\frac{1}{8}$ " to 24" I.D. . . . bronze, galvanized or stainless steel Penflex makes all types and sizes of flexible metal tubing. Penflex "Flexineering"—the science of applying flexible tubing to fit the particular needs of your plant—assures the right tubing on each installation.

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For More Information Circle No. 360
on Inquiry Card—Page 17



How to Get Industrial and Business Publicity

by C. E. St. Thomas
Chilton Co. \$5.00

A good publicity program is invaluable to purchasing agents associations. With one, it's possible to maximize attendance at meetings and give purchasing activities the attention they deserve in the public press and professional publications. *How to Get Industrial and Business Publicity* could be a useful guide to association publicity chairmen who want to get results. Also, it would be certainly a worthwhile addition to any purchasing agent interested in broadening his knowledge of all phases of the company's operations. Chapters cover such subjects as how to organize for publicity, forms and working procedures for systematizing the operation, how to release publicity, personal contacts with the press, photographs to tell the story, publicity based on a knowledge of the editor's work, and measuring and reporting publicity for greater effectiveness.

P.A. Explains Why Small Firms Often Make The Best Vendors

Unusual personal services offered with a quality product to a big company often are the key to the success of a small business, according to W.H. Scott, Standard Oil Company (Indiana) purchasing department manager.

In some cases only big concerns are able to furnish items in the large quantities needed. But according to Scott, many times the small supplier finds a big business such as Standard Oil can be its best customer and provide a market that assures success. One business that particularly benefited this way, Scott recalls, is the McKee Door Company, Aurora, Ill.

"Our purchasing dollars go to some 30,000 big, medium, and small suppliers," he explains.

"Some of the bigger companies could take lessons from the smaller firms in the service they

render," Scott adds in an article printed in the current issue of *Standard Torch*, employee magazine of Standard Oil.

Personal service, price, quality, and whether the supplier will be able to deliver the goods as promised usually determine who gets an order, Scott says. Standard Oil has a reputation also, he adds, for being fair and lets anyone bid on an order. This lets the small business compete with the big company.

Scott tells of four companies that Standard Oil helped along when it recognized they had good products and provided good service.

A Case History

The McKee Door Company, which began at Harvey, Ill., south of Chicago and now is at Aurora, capitalized on service and product that big companies could not match.

In 1929 when McKee was operated by James McKee and his sons, Theodore and John, and only 10 or 15 employees, the company made its first sale to a major company, Standard Oil.

A large, easy-to-operate door was needed, opening to the inside lubrication pits that Standard Oil service stations were starting to build. The Standard Oil purchasing agent decided the McKee door was a superior product at a fair price, and placed an order.

Standard soon learned also that McKee gave prompt attention if any difficulties were encountered with the doors. This led to repeat orders.

"The steady business we obtained from Standard helped us prosper and grow," John McKee, now company president, says.

His firm now operates nationwide, employs 200 persons and still supplies Standard Oil with many doors.

Standard bought petroleum marketing equipment in 1916 from the Amco Corporation, Scott says, and helped it grow when that firm was starting in Chicago because it had products Standard needed and accepted. Amco still is a supplier and now has several large warehouses and does business nationally. It began 40 years

(Please turn to page 298)

For More Information Circle No. 361
on Inquiry Card—Page 17→

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Precision Spindle
BUILT ESPECIALLY
FOR YOUR WORK

25 hp heavy duty precision spindle
with 24" grinding wheel.

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surface grinder spindle.

Precision inbuilt
motor spindle for
cutter grinder.

Heavy duty motorized
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available up to 20 hp.

EX-CELL-O High-frequency Spindle, rated at
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For production grinding to precision limits
"just any spindle" won't do. It must be carefully selected to suit the work. From Ex-Cell-O's widely-varied line of precision spindles you can select a standard model, or we'll make one special to your requirements. These spindles have long been the original equipment choice of leading manufacturers.

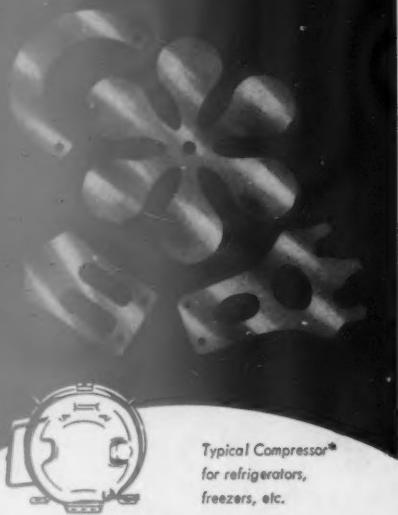
Features of the line include:

- Rigidity
- Permanent adjustment
- No vibration, no chatter
- Precision ball bearings preloaded for predetermined speeds

Phone your Ex-Cell-O representative, or phone or write Ex-Cell-O in Detroit, for CATALOG LISTING HUNDREDS OF STANDARD GRINDING SPINDLES

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Valve Stampings...
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Typical Compressor*
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For 30 years, most compressor manufacturers have relied on us for these stampings. Reasons are—our experience and our exclusive DE-STA-CO Isofinishing Process which produces matchless long-lasting qualities.

We welcome your inquiry for this or other similar critical stamping assignments.

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*Model P5312, made by Tecumseh Products Co., Tecumseh, Michigan



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408 Midland Ave., Detroit 3, Mich.

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Look to Detroit!

For More Information Circle No. 364
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(Continued from page 296)

ago in a building with a 30-foot front.

A special float gauge for storage tanks invented by the Tokheim Company made Standard one of the first customers of the Cedar Rapids, Iowa, firm, Scott says. The founder often commented that the initial purchases put the Tokheim firm in business and kept it expanding.

The Viking Pump Company was started at Cedar Falls, Iowa, by two men who said much of its success stems from purchases by Standard about 1920 of a newly developed pump. Scott says that Standard's policy of prompt payment on sales was credited by Viking for providing necessary income to maintain operations and expand, an important economic factor which Standard also recognizes can mean a big boost to a small business.

Tool Steel Handbook Available for Asking

The fourth edition of the 204 page "Tool Steel Handbook" is now being distributed by Allegheny Ludlum Steel Corporation.

This hard-backed book has been up dated with the latest information on tool steels. The past editions have served as reference books to many persons in the trade.

The book contains complete data on types, properties, and applications of tool steels. There are complete chapters devoted to such items as: selecting the proper steel, tool steel products, and working tool and high speed steels. A section is devoted to informative reference tables that those interested in tool steels will find useful.

A copy of the book may be obtained by writing to the Advertising Department, Allegheny Ludlum Steel Corporation, 2020 Oliver Building, Pittsburgh 22, Pa.

**FOR FURTHER
INFORMATION ON
PRODUCTS IN THIS ISSUE
USE INQUIRY CARD—PAGE 17**

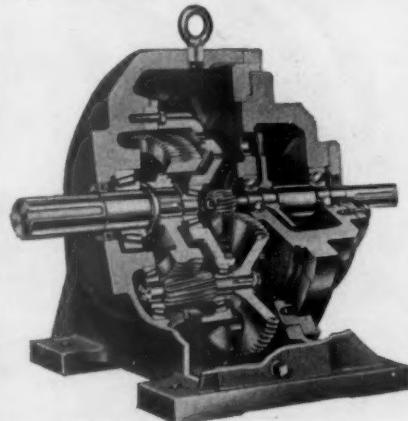
New IN-LINE Speed Reducers...



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For More Information Circle No. 487
on Inquiry Card—Page 17

PURCHASING



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better protection • longer wear • greater comfort

Wil-Gard Gloves stay on workers' hands—because they're comfortable. The Wilson-originated curved finger construction provides maximum comfort, plenty of flexibility, and a natural, pleasant feel. Half your safety battle is getting workers to use the protection you provide . . . so make sure you get Wil-Gards . . . gloves they'll wear.

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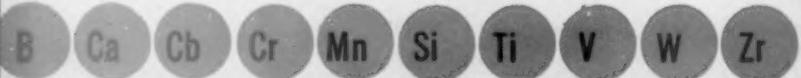
The ELECTROMET story is one of steady growth and progress for the benefit of the metal industries. When you buy from ELECTROMET, you get the best in alloys and service plus the advantages of long manufacturing experience and extensive research.

Here are some of the advantages you get from ELECTROMET's integrated programs.

Competent Metallurgists and Sales Engineers

Nine sales and service offices are strategically located in the major steel producing centers as shown on the map above. If you have a problem on metals or alloys, let one of our experienced metallurgists or sales engineers help you. He will be glad to assist you with any problems on the production of quality steels, irons, and non-ferrous metals. Simply telephone or write the ELECTROMET office nearest you.

- Sales and Service Offices
- Plants
- ▲ Warehouses



'S 50 Years of Experience

Continuing Research and Development

Since 1906 ELECTROMET has carried on a three-way program of research, development, and technical service. More than 300 skilled research scientists, engineers, and technicians work in ELECTROMET's Metals Research Laboratories and Development Laboratories at Niagara Falls (shown here). This program provides you with new ferro-alloys and metals, better ways of using them, and new and improved alloy steels and irons. Innovations are fully developed in our laboratories before they are offered commercially.

Wide Range of Alloys to Meet Your Needs

Over 50 different products are manufactured to meet the regular requirements of the metal industry as well as the special needs of customers. This wide range of high-quality ferro-alloys and metals is the result of 50 years of research, development, and service by ELECTROMET. ELECTROMET offers the widest selection of ferro-alloys and metals to meet your specific requirements.

Seven Modern Plants—4 With Own Power Facilities

Our plants have been greatly expanded and modernized to meet the current demands for ferro-alloys and metals. The recently completed plant at Marietta, Ohio, is the world's largest ferro-alloy plant. Company-owned power facilities at four of the plants assure a constant supply of power for efficient production. Prompt shipment of ELECTROMET ferro-alloys is assured from all seven plants, and from six warehouses conveniently located to serve you.

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The availability of ores, and other raw materials is assured by ELECTROMET's diverse facilities, including mines and ore milling plants owned by UNION CARBIDE. Helping to assure adequate ore supplies are the ore buying facilities of Union Carbide Ore Company, a Division of Union Carbide and Carbon Corporation. Ores come from the far corners of the earth to ELECTROMET's plants. On this simplified map of the world, symbols for the chemical elements indicate a few of the major sources of alloy ores.

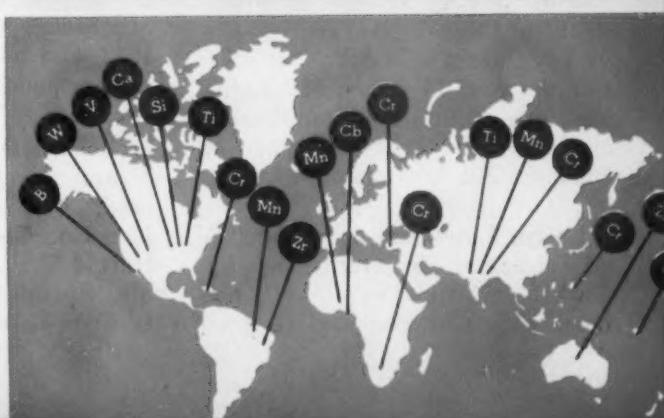
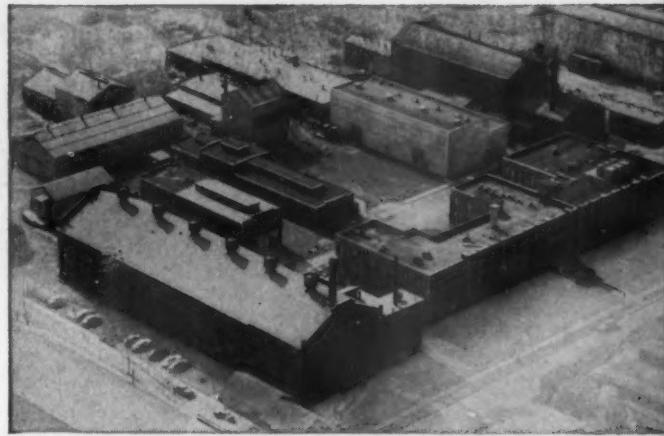
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purchasing people

in the news

William R. Lantz, vice president in charge of purchasing, and merchandise manager, for Sun Rubber Co., Barberton, O., has been named a member of an executive committee chosen to di-



W. R. Lantz

rect an expanded production and sales program at Sun Rubber. Mr. Lantz is a member of the Purchasing Agents Association of Akron, having served as president in 1951-52. He also was a vice president of N.A.P.A. in 1953. For the past 14 years, Mr. Lantz has taught industrial purchasing at Akron University's College of Business Administration.

Emlyn Lloyd has been appointed director of purchasing for Chrysler Corp., Detroit. He has been with Chrysler and its pre-

decessor, the Maxwell Motor Corp., since 1923 and has been general purchasing agent of the company since 1951.

Russell, Burdsall & Ward Bolt and Nut Co., Port Chester, N. Y., has named Charles R. C. Steers purchasing agent. He succeeds



C. R. C. Steers

P. M. Culyer, who has retired. Mr. Steers joined the company in 1948, and has been assistant purchasing agent since 1952.

Richard H. Sheppard has been named purchasing agent, Cleveland, for The Cleveland-Cliffs Iron Co., Cleveland. He succeeds Harold C. Shade, who has retired. Mr. Sheppard joined Cleveland-Cliffs in 1936.

International Business Machines Corp., New York, has appointed Harry J. Moore, Jr., director of purchasing. Mr. Moore succeeds William L. Lewis, vice president in charge of purchasing,



H. J. Moore, Jr.

who has retired. Mr. Moore joined IBM in 1948. Successively, he held the posts of branch manager at Bakersfield, Calif., administrative assistant to the production manager at the Endicott, N. Y., plant, and manager of the personnel division at Endicott. In March of this year, he was made assistant director of purchasing.

Elmer G. Westlund has been appointed purchasing agent of the government manufacturing plant at the Raytheon Mfg. Co., Waltham, Mass.

Look what paper is doing now:

* **New idea in unit packaging:** By pairing two standard cartons in one overwrap, Nabisco introduces a new large-size Lorna Doone package that's easy to handle, keeps cookies



crisp longer, and eliminates need for extra machinery. To protect freshness, the individual boxes are lined with a special Riegel waxed glassine.

* **The hunting season** is now open, but few of today's nimrods will remember when all shotgun shells were made of brass. Expensive, they were saved and reloaded. The advent of Riegel's "Shot Shell" paper changed all this and helped create a mass market for guns, hunting apparel and the like.

* **Wanted:** Toys that won't break. That's not too big an order for paper. Riegel developed a paper for the bellows of toy accordions that would take thousands of squeezes without breaking. More recently we worked



up a special strong, laminated glassine for the popular Jet-Zoom toy. Riegel is the leader in papers designed to take a beating.

* **Over 600 different** Riegel papers are now made for printing, packaging and industrial uses. Write to Riegel Paper Corporation, P.O. Box 250, New York 16, N.Y.

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Blemishes in X-ray film might cause an error in diagnosis, so nearly every film manufacturer folds a special Riegel protective paper around each film. No less than eleven technical properties are combined in this paper to guard against scratching, static electricity, chemical or photographic reaction, etc.

Betty Crocker's new Junior Baking Kit assures success for playtime bakers by sealing the flavor and



quality of 12 cake mixes and frostings in pouches of Riegel's laminated, poly-coated glassine. Pouches are slipped into junior-sized boxes just like mommy's.

Glassine is made transparent by squeezing with tremendous pressure between rolls of a giant super-calender. Amazingly, the giant rolls are themselves made of paper. Disks of a soft, all-cotton Riegel paper are compressed on a shaft, machined and polished into steel-hard rolls.

When you need something new in paper, ask about Riegel's "pilot-plant" paper machine. It will make an experimental run of just a few hundred pounds for you. All you pay is \$25 per hour plus cost of materials. Riegel contributes research, engineering and labor to help you develop new ways to use paper. Write to Riegel Paper Corporation, P.O. Box 250, New York 16, N.Y.

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* **"Buy the bag...and save the difference,"** says Duncan Coffee Co. The saving results from use of Riegel's Laminated Diafane,[®] a



smooth, glossy, snow-white paper that gives a tight heat-seal, retains all the fresh aroma of fine coffees.

* **From Boats to Coats:** U.S. Shipyards used over 6,000,000 tons of steel last year. The clothing industries used amazing tonnages of cloth. One thing in common... both industries used vast quantities of Riegel's Pattern and Templet paper to measure and cut the steel and the cloth. Both are stiff, heavy-duty papers that hold true dimensions regardless of humidity and handling.

* **You'd never guess** that the clean, crisp glassine that keeps a first-aid bandage sterile has lived through a hot steam bath. The glassine was a special Riegel development... takes



autoclaving without weakening, becoming brittle, or discoloring. Can one of our 600 different papers help you? Riegel Paper Corporation, P.O. Box 250, New York 16, N.Y.

Now...what can
Riegel do for
you?

Riegel

TECHNICAL PAPERS
FOR INDUSTRY

MILFORD RIVETERS-

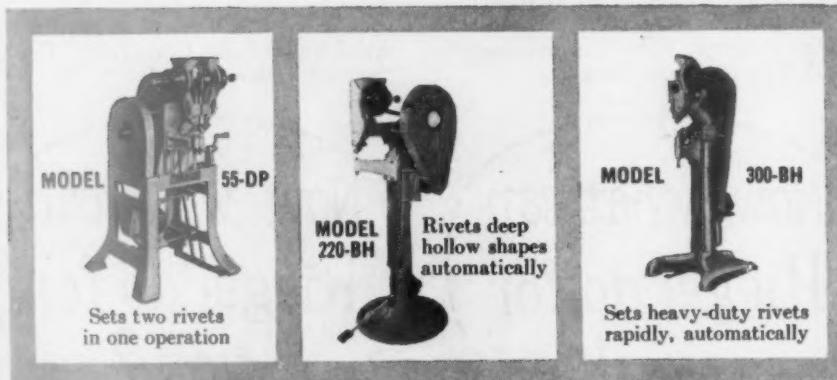
for faster assembly,
for dependable fastening

Fasten a wide range of assemblies
Safely—Rapidly—Automatically
with Milford Rivets and Riveters

Delicate wrist watch bracelets...
rugged, heavy-duty truck brake lining—a wide range of parts like these
are being fastened safely and economically with Milford Rivets and
Rivet-Setting Machines.

Call on Milford's versatility and
skill to adapt a basic rivet-setting
machine to your particular requirements—call on Milford to solve your
fastening problems and come up with
substantial savings.

To cut production costs, improve
product appearance, fasten assemblies automatically—get in touch
with Milford!



**MILFORD RIVET
& MACHINE CO.**

MILFORD, CONNECTICUT • HATBORO, PENNSYLVANIA
ELYRIA, OHIO • AURORA, ILLINOIS • NORWALK, CALIF.

For More Information Circle No. 366 on Inquiry Card—Page 17

purchasing
people

Micromatic Hone Corp., Detroit, has appointed **Ray W. Gauss** as special assistant to the treas-



R. W. Gauss

urer. Named purchasing agent in 1940, Mr. Gauss will continue in this capacity in addition to his new appointment. He is a member of the N.A.P.A.

George F. Burley has been named director of purchases for Warwick Mfg. Co., Chicago. He comes to Warwick from Motor



G. F. Burley

Products Corp., Detroit, where he held a similar post. It was also announced that **Joseph R. Hoffman** has been named manager of purchasing. He was formerly assistant to the president of Screw Conveyor Corp., Hammond, Ind.

Light, bright and carefree In Cyanamid plastics!

BUDD TRIMS WEIGHT in famous "Pioneer III," revolutionary railway passenger coach, with use of high-strength, fibrous glass-reinforced LAMINAC® polyester resin moldings. LAMINAC interior trim and appointments alone save some 7500 pounds! Double seats, step wells and washrooms are one-piece moldings and interior bays are reinforced LAMINAC from floor to ceiling. Tough, hard-wearing reinforced LAMINAC resists scuffing — is easy to clean, and integral color means no painting ever. If damaged, repairs are made easily on the spot and individual units can be replaced in minutes.



TO A LADY'S LIKING — the trim Remington Duchess electric shaver is housed in colorful, warm-to-touch CYMEL* melamine plastic, chosen for its resistance to heat, moisture and body lotions. It's a delight to look at in pastel pink or blue — and the color won't chip off or stain!

*Trademark

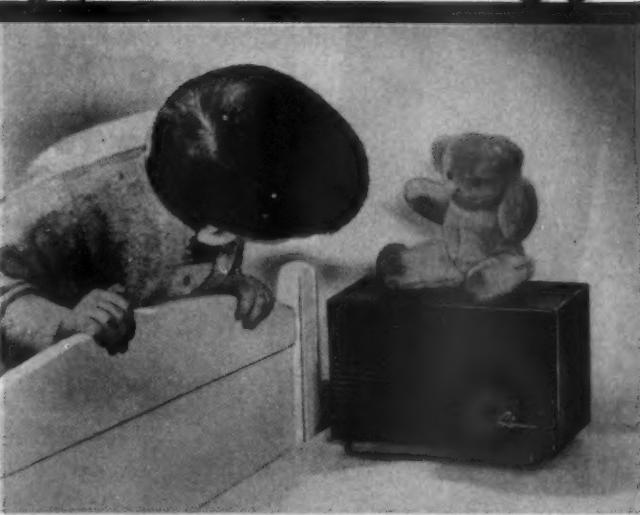
There's a lasting, bright, carefree future for your product in Cyanamid plastics and resins. Take a new look at your problem; perhaps there's an answer in our melamine or urea molding compounds, polyester resins, synthetic adhesives or resins for surface coatings.

IN CANADA:

North American Cyanamid Limited, Toronto and Montreal

OFFICES IN:

Boston • Charlotte • Chicago • Cincinnati • Cleveland • Dallas • Detroit
Los Angeles • New York • Oakland • Philadelphia • St. Louis • Seattle



FAMILY 'INTERCOM' — that's the new Sylvania Phone-Radio. Cased in BEETLE® urea plastic in smart, molded-in colors, each unit is resistant to scratching, staining and warping... lightweight but strong. These are advantages in end use, in shipping and in manufacture.

CYANAMID

AMERICAN CYANAMID COMPANY

PLASTICS AND RESINS DIVISION

30C Rockefeller Plaza, New York 20, N.Y.

For More Information Circle No. 367 on Inquiry Card—Page 17

when the
Heller Distributor
is in your picture
you can be
sure of
ample stocks,
service and
savings!

LET your local Heller Distributor take care of your file needs . . . help you with filing problems . . . simplify file purchasing and save you money.

This able, silent partner of American industry . . . and representative of America's oldest file manufacturer . . . provides these valuable and practical services:

1. **Gives delivery when you need or want it of any type of file from his own stock, making it unnecessary to tie up your capital in a large inventory of your own.**
2. **Checks your file operations to be sure you're using the right types and sizes . . . carries a reserve stock for use when you need them.**
3. **Keeps you informed on new file developments and applications that save time and cut costs.**
4. **Offers counsel of a Heller factory file engineer to survey your use of files and make recommendations that help your file dollars go farther.**
5. **Maintains an ample stock of all types of files as well as regular and special handles, accessories, hammers and tools.**
6. **Makes your file problems his . . . and solves them.**

The best file is by Heller, originator of the famous VIXEN Milled Curved-Tooth file, the Wavy-Teeth NUCUT American Pattern file and the Spiral-Cut Half Round file. *The best source of supply is your Industrial Supply Distributor.*

Enjoying the practical help of your Heller Distributor is as easy as tuning in your favorite television show. Call on him for ALL your file, hammer and tool needs.



HELLER TOOL CO. NEWCOMERSTOWN, OHIO

SUBSIDIARY OF SIMONDS SAW AND STEEL COMPANY

America's oldest file manufacturer

Smoothing the way where the going is rough



If you grind . . . smooth . . .
or polish . . .

metal, plastic, wood, rubber or leather products, there's a JEWEL BRAND Abrasive Belt in the precise size and grit to meet your specific needs. All JEWEL BRAND Belts feature the unique velvet joint that runs smoother, lasts longer. Check and test the advantages of these cost-saving belts. Consult your Industrial Distributor or write direct to Abrasive Products Inc., 523 Pearl Street, South Braintree 85, Massachusetts.



"Smoothing
the way
where the going
is rough"

Frequently AP salesmen are able to provide unusual service in supplying abrasives because their plant is neither too big to lose the personal touch nor too small to lack emergency capacity.



Abrasive Products, Inc.

SOUTH BRAINTREE 85, MASSACHUSETTS - MAKERS OF JEWEL COATED ABRASIVES

For More Information Circle No. 369 on Inquiry Card—Page 17

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purchasing
people

The General Tire & Rubber Co., Akron, has appointed **Walter M. Rauscher** to the post of buyer,



W. M. Rauscher

engineering purchases. He was previously with General in the chemical division at Ashtabula and with the Aerojet-General subsidiary at Cincinnati.

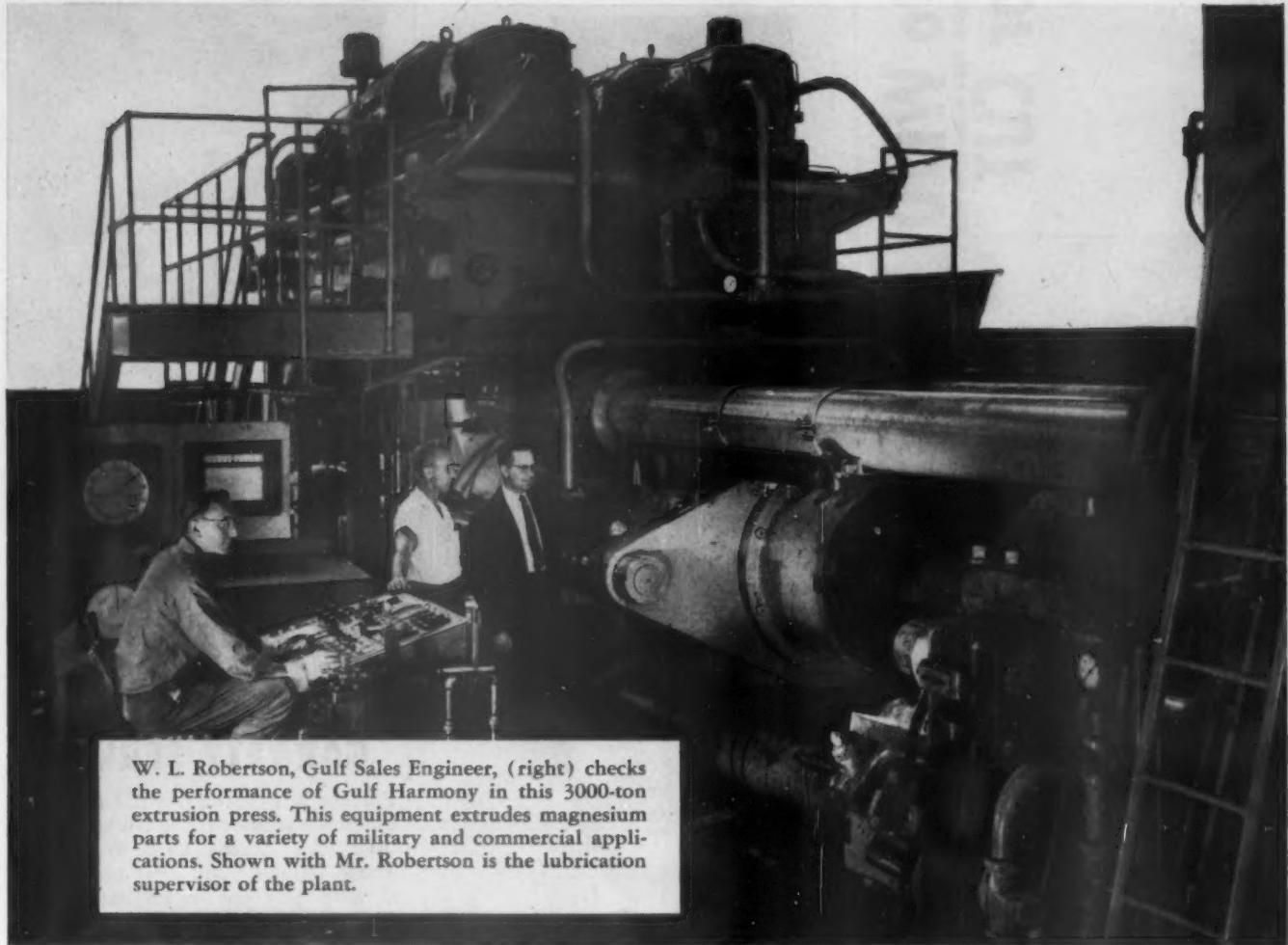
The Morgan Engineering Co., Alliance, O., has appointed **Arthur S. Minto** manager of pur-



A. S. Minto

chasing and material control. He joined the firm in 1952 as purchasing supervisor. Previously, he was with duPont as a buyer in their engineering construction division. He is a member of the Canton and Eastern Ohio Association of Purchasing Agents.

PURCHASING



W. L. Robertson, Gulf Sales Engineer, (right) checks the performance of Gulf Harmony in this 3000-ton extrusion press. This equipment extrudes magnesium parts for a variety of military and commercial applications. Shown with Mr. Robertson is the lubrication supervisor of the plant.

Ease your hydraulic press maintenance problems with **GULF HARMONY**

Like this midwestern light metals plant—and hundreds of other metalworking plants—you'll discover that Gulf Harmony is the oil that sets a new standard of performance in hydraulic equipment.

Here's why: Gulf Harmony has outstanding resistance to oxidation, high film strength, effective rust preventive and anti-foaming properties.

It prevents the formation of sludge deposits and main-

tains its original viscosity over long periods of time. It protects vital parts against excessive wear, even under severe conditions of pressure, speed, and temperature. And it prevents harmful rust in the system.

So if you are not entirely satisfied with your hydraulic oil, ask a Gulf Engineer to recommend the proper grade of Gulf Harmony. Consult the local phone directory for the number of your nearest Gulf office.

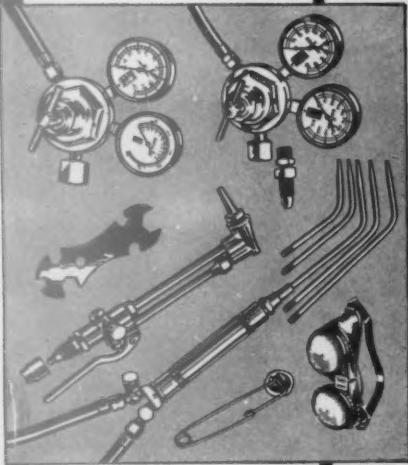
GULF OIL CORPORATION
1822 GULF BUILDING



GULF REFINING COMPANY
PITTSBURGH 30, PENNSYLVANIA

For More Information Circle No. 370 on Inquiry Card—Page 17

to WELD or CUT



there is a Dockson OUTFIT "complete" at one low price

FOR EXAMPLE—The Dockson No. 145 Outfit illustrated above is for light and medium welding and cutting jobs up to and including 5' steel. At one low price you get—

1—No. 4-F-C Hi-Speed Welding Torch • 1—Ex. Nos. 2, 4, 6, 8 and 10 "F" Style Elbow Tips • 1—C-4 Hi-Speed Cutting Attachment • 1—C-2 Cutting Tip • 1—No. 134-8E Oxygen Regulator, 200 lb. and 3000 lb. guages • 1—No. 134-40 Acetylene Regulator, 50 lb.

and 500 lb. guages • 1—Commercial to P.O.L. Adapter Connections • 1—12½ ft. length $\frac{1}{4}$ " Siamese Hose • 4—Hose Connections • 1—Orifice Wrench • 1—Round File Gas Lighter • 1—Pr. Series 66-19-6 Welding Goggles.

YOUR DOCKSON DISTRIBUTOR—is a carefully selected specialist who carries a complete line of Dockson Products in stock to give you fast service and personal attention. We back our distributors 100%.



3339 WABASH • DETROIT 8, MICH

For More Information Circle No. 371
on Inquiry Card—Page 17

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purchasing
people

The Cryovac Co., division of W. R. Grace & Co., Cambridge, Mass., has appointed Arthur S. Russell purchasing agent for the Cambridge operations. Mr. Russell has been with Cryovac and its parent organization since 1935.



R. Wages

Rolland Wages has been made traffic supervisor in the purchasing department of Northern Natural Gas Co., Omaha, Neb.

C. R. Raftery has been named director of material for Autonetics, a division of North American Aviation, Inc., Los Angeles. He will be in charge of all purchasing, warehousing, traffic and salvage operations for Autonetics. Prior to assuming his new post, Mr. Raftery was director of material at North American's Downey plant. He joined the company in 1940 as a material control clerk in the purchasing department at the Los Angeles plant. Subsequently, he progressed through the functions of expediting, outside vendor contact and buyer, to become supervisor of the department's hardware section. He also served as supervisor of the Los Angeles purchasing department's vendor claims from 1946 to 1951.

WRITE FOR YOUR DISTRIBUTOR'S NAME AND OUR COMPLETE CATALOG OF WELDING AND CUTTING EQUIPMENT, BUILT FOR BETTER SERVICE.



DON'T GIVE ME THAT!

YOU CAN'T BEAT GARRETT SERVICE

I'm not a wise guy, but I do know about the service these Garrett plants give you. Seems hard to believe. Those fellows bend over backwards to help you out in an emergency. And their regular service means you always get deliveries when promised . . . sometimes before.

Of course, when it comes to quality they are tops on lock washers, flat washers, spring washers, hose clamps, stampings and assemblies. They have three plants equipped with the most modern high-speed automatic machinery to turn out billions of parts to exact specification . . . complete heat treating, plating and finishing facilities. If you don't believe me, next time send your order into Garrett. You'll see why their customers say YOU CAN'T BEAT GARRETT.

LOCK WASHERS
FLAT WASHERS
HOSE CLAMPS
STAMPINGS

Manufactured by

GEORGE K. GARRETT CO., Inc.
Philadelphia 34, Pa.



For More Information Circle No. 372
on Inquiry Card—Page 17
For More Information Circle No. 373
on Inquiry Card—Page 17→

cut it with

stop



BAND SAW BLADES



SOLD ONLY THROUGH CAPEWELL DISTRIBUTORS

who provide: complete inventory . . . engineering assistance
. . . delivery when you need it.

THE CAPEWELL MANUFACTURING COMPANY
Hartford 2, Connecticut

Please send complete details on Capewell Band Saw Blades to:

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____



Your roof lives longer behind this "shield"

...covered with Asphalt-Aluminum
Roof Paint or Coating!



That's right. You can actually put a protective shield right over your built-up or rustable metal roofs with a good aluminum roof coating. This "shield" slows decomposition of roofing material and reflects the sun's heat.

As the coating is applied, tiny aluminum flakes rise to the surface and leaf. When dry, the aluminum shield is firmly bound to your roof—a non-rusting metallic surface.

The result? Roof maintenance is cut drastically. The aluminum coating adds years to roof life. Buildings are up to 15° cooler in summer.

Look for Asphalt-Aluminum roof paints or coatings with the Warranty Seal. It is your assurance of an approved vehicle and at least two full pounds of pure aluminum pigment in every gallon.

Reynolds doesn't make aluminum paints. If you would like the names of manufacturers who rely on the high quality of Reynolds Aluminum pigments, we'll gladly send you the list. Just use the coupon below.

Watch for Reynolds New Program, "Circus Boy," Sundays on NBC-TV.

ALUMINUM PAINT FOR PLANT MAINTENANCE

Resists rust, smoke and fume corrosion,
moisture—reduces evaporation of volatiles
—reduces expansion—renews appearance

—greatly increases plant lighting efficiency. One coat lasts and lasts. Paint on protection—with Aluminum Paint!

Reynolds Metals Company
P. O. Box 1800-PP, Louisville 1, Kentucky
Please send me information about:

- Aluminum Roof Coatings.
- Aluminum Paints.
- Also send me list of manufacturers.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

For More Information Circle No. 374 on Inquiry Card—Page 17

purchasing people

The board of directors of Whiting Corp., Harvey, Ill., has elected N. C. Swigart vice president-purchasing and traffic. Mr. Swigart joined Whiting in 1942 as a member of the purchasing department. He also served, later, in the expediting department and as manager of the central order department. He was director of purchasing at the time of his appointment as vice president.



S. A. Matthews

Sidney A. Matthews has been appointed a machine tool analyst by Standard Pressed Steel Co., Jenkintown, Pa. He will evaluate, recommend and coordinate the purchase, delivery and installation of all new machine tools purchased by the company. Formerly in the engineering department as a project engineer, he is now attached to the purchasing department at SPS.

Mark A. Starr has been named director of material for the Missile Development Division, North American Aviation, Inc., Downey, Calif. He joined the company in 1938 as a stock room clerk, getting his first supervisory appointment in 1941 as purchase order

(Please turn to page 314)

PURCHASING

TORRINGTON BEARINGS



Heat treating makes the difference!

At Torrington we're as fussy with heat treating a bearing as an expert chef is about a charcoal-broiled tenderloin. No wonder TORRINGTON BEARINGS last long and give dependable service wherever they are used.

For out of TORRINGTON's advanced heat-treating facilities come races and rollers that are consistently hard...stable...uniform. Quality of steel is important and that's carefully controlled, too. Only the finest bearing quality steels—case-hardening or through-hardening grades—are used in manufacture.

At the Bantam Bearings Division, we make all types of bearings for heavy duty application—Spherical Roller, Tapered and Cylindrical Roller, Heavy Duty Needle, Ball and various types of thrust bearings.

Make sure you specify TORRINGTON. Our many basic types of anti-friction bearings are backed by custom engineering to meet your speed and load requirements. For special jobs, your TORRINGTON engineer will be happy to select or help design the best bearing for you. Call him today!

THE TORRINGTON COMPANY
South Bend 21, Ind. • Torrington, Conn.
*District offices and distributors in principal cities of
United States and Canada*



TORRINGTON BEARINGS

Spherical Roller • Tapered Roller • Cylindrical Roller
Needle • Ball • Needle Rollers

FILL OUT COUPON
FOR FACTS, SAMPLES!

ALUMINUM COMPANY
OF AMERICA
448-K Alcoa Bldg.
Pittsburgh 19, Pa.

Gentlemen:
Please send complete specification data
and samples of your aluminum fasteners.

Name _____
Title _____
Company _____
Address _____

Always fasten aluminum with

ALCOA
Aluminum
Fasteners

available at your local ALCOA distributor

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purchasing people

(Continued from page 312)

control supervisor in material control. From there he became material control foreman, outside production supervisor, material division supervisor, vendor claims negotiator, purchasing expediter, buyer, and general supervisor of the aerophysics section of the purchasing department. He is a member of the Purchasing Agents Association of Los Angeles.

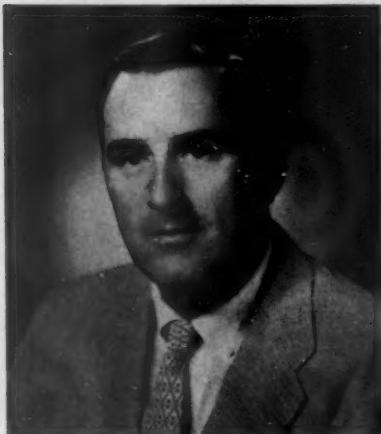


R. F. Fitzgerald

The appointment of Richard F. Fitzgerald as supervisor of the purchase research and analysis section of the central purchasing department has been announced by Eaton Mfg. Co., Cleveland. He joined Eaton last year as a senior price analyst. Previously, he had been in the purchasing and planning department of The White Motor Co.

B. R. Cheyney has been named purchasing agent for the State of California. Mr. Cheyney has been in purchasing work for the past 30 years, with the exception of the war period. Starting in San Francisco as assistant western purchasing agent for the Hercules Powder Co., he rose to western purchasing agent in 1932. In 1947, he joined the state purchasing di-

vision as a senior buyer in Sacramento. In 1950 he became deputy purchasing agent in charge of the San Francisco area office. He was made acting state purchasing agent in 1956.



Donald Saunter

Dodge Mfg. Corp., Mishawaka, Ind., has made Donald Saunter director of production and purchasing. He joined Dodge in 1937, working in the machine shop. By 1946, he was foreman of the new light duty bearing department. In March, 1951, he was named to handle special assignments for Earl Wedlake, who was then production manager and who is now vice president in charge of production and purchasing.



H. C. Oliver

H. Clay Oliver has been named purchasing agent for the Fulton Sylphon Division of Robertshaw-Fulton Controls Co.

PLEASE USE
INQUIRY CARD
PAGE 17



**There's a
story here**

**Ever notice the CROLOY story
In B&W's fittings ads?**

MORE than likely you've seen the little black box on the bottom of each fittings ad. It's a simple phrase ... The Natural Source for Alloy Fittings. But, have you ever stopped to think what it really means?

You probably know that B&W pioneered in the manufacture and application of alloy tubular products. Years of research and development resulted in B&W CROLOY Pipe and Tubing and its firmly established reputation and acceptance.

This same invaluable experience, knowledge and reputation backs up every B&W CROLOY Welding Fitting. This is what "The Natural Source for Alloy Fittings" means.

B&W CROLOY Welding Fittings are available through B&W District Sales Offices and any welding fittings distributor. Ask for them by name and be sure.

THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION • FITTINGS DEPARTMENT
3839 WEST BURNHAM STREET • MILWAUKEE 46, WISCONSIN

Seamless welding fittings and flanges, seamless and welded tubular products—in carbon, alloy and stainless steels.

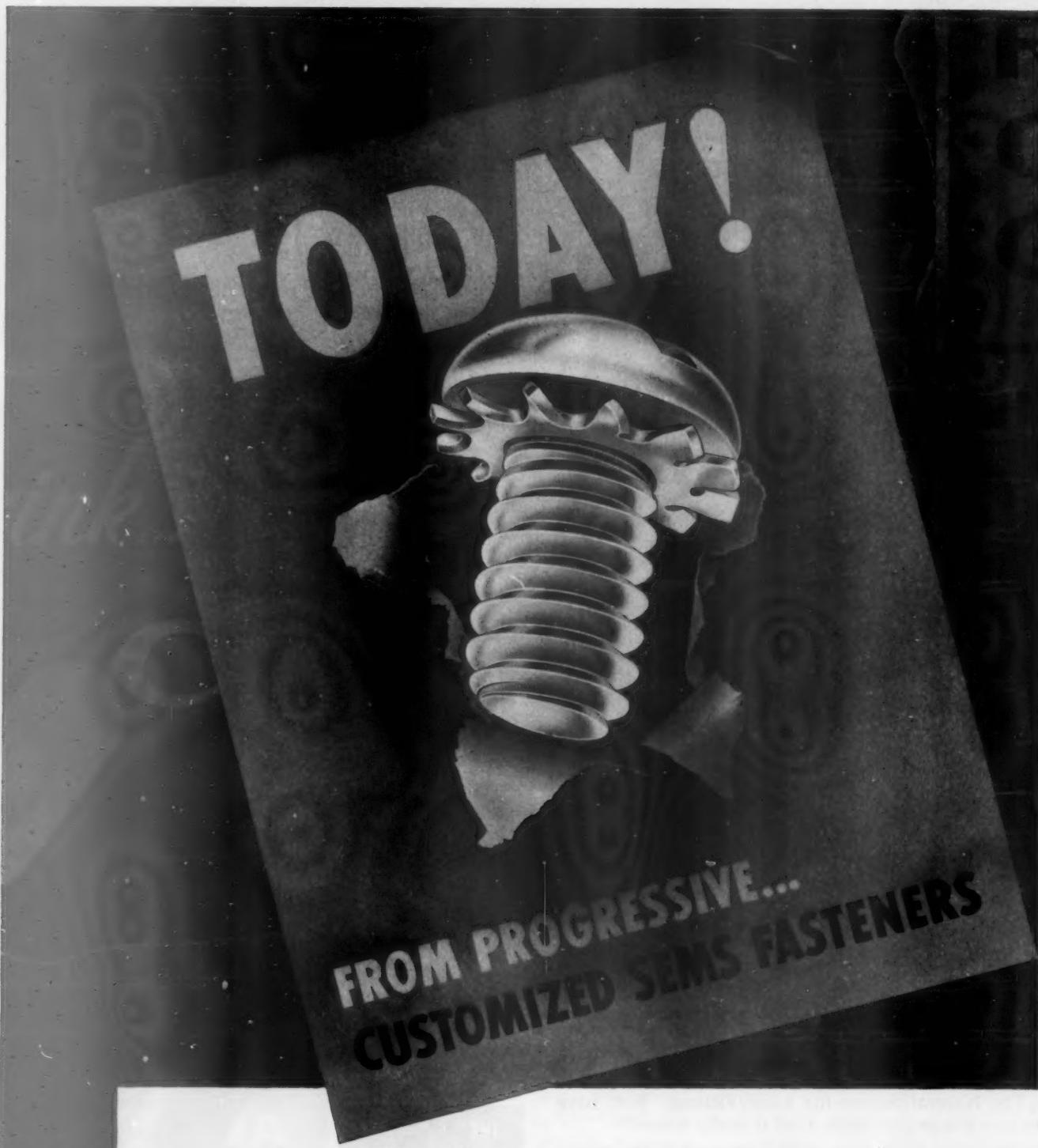
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OCTOBER, 1956

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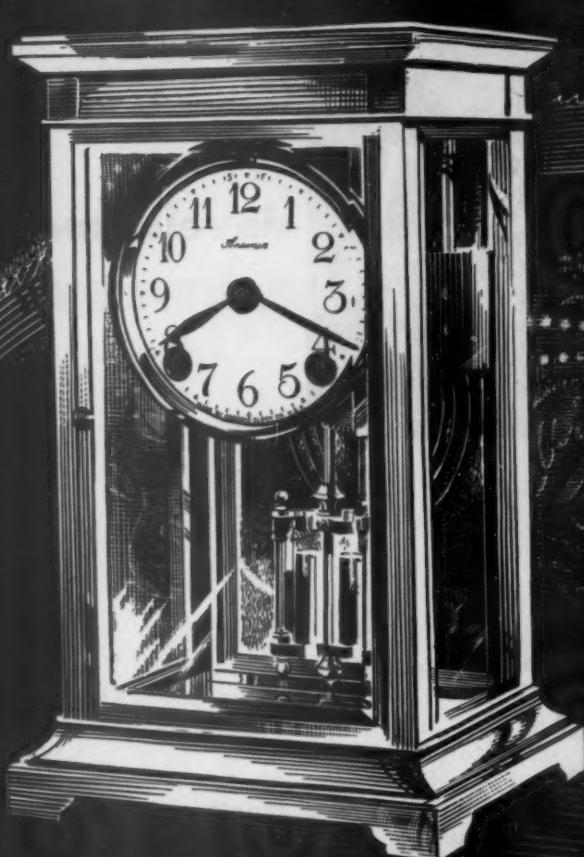


Now you can get from PROGRESSIVE Sems Fasteners with an extra customized touch — Sems Fasteners which are custom-made to your order. This means: (1) specifically made for you — not bin stock parts; (2) fast, custom-handling of every order; *plus* (3) the double economy of low initial cost *and* the savings in your assembly operations possible only with high precision, torsion-tested fasteners.

STANDARDS AND SPECIALS CUSTOMIZED FOR YOUR NEEDS

THE PROGRESSIVE MFG. CO.

Division of The Torrington Company
56 Norwood Street, Torrington, Connecticut



(COURTESY OF THE
BRISTOL CLOCK MUSEUM)

Enduring Craftsmanship in Metal

Skillfully crafted by Connecticut's master clock makers in the 1860's, this timepiece is still measuring the hours dependably and accurately after nearly a century of service.

Honest craftsmanship in the production of MILFORD Metal Cutting Saw Blades is paralleled by MILFORD's straightforward business relationships...as exemplified by the MILFORD Statement of Distributor Policy, which has set the standard for the entire industry.

Hack Saw and Band Saw Blades • Hole Saws • Ground Flat Stock

MILFORD

THE HENRY G. THOMPSON & SON CO.

Saw Blade Specialists for 80 Years

NEW HAVEN 5, CONNECTICUT

For More Information Circle No. 379 on Inquiry Card—Page 17

industry development

As part of an extended expansion program that will increase production by 30%, **Stillman Rubber Co., Culver City, Calif.**, has completed construction of an 8,000 sq.ft. office and warehouse building.

Plans for an extensive addition to production facilities at its oxy-chemicals plant in Gibbstown, N. J., have been announced by **Hercules Powder Co., Wilmington**. The program will double the

production capacity of para-cresol and its derivatives. The production of di-tert-butyl-para-cresol will also be doubled.

A new rubber development laboratory designed to provide increased sales service and development for the rubber industry has been put into operation by the **Chemical Division, Goodyear Tire and Rubber Co., Akron**.

U. S. Industries, Inc., New

York, has acquired the Western Design & Mfg. Corp., Goleta, Calif.

A modern plant in Ridgetown, Ontario, has been bought by **Tube Turns of Canada, Ltd.**, an associate of Tube Turns, Louisville, Ky.

An 11-1/2 acre tract in Pinoca, N. C., has been purchased by **Joseph T. Ryerson & Son, Inc., Chicago**, for the construction of a new warehouse.

Plans to construct a plant at Murfreesboro, Tenn., have been announced by **Appliance Motor Department, General Electric Co., Schenectady**. Fractional horsepower motors for appliances will be manufactured in the 135,000 sq. ft. plant, scheduled for completion late next year.

A 20,000 sq.ft. plant addition has been completed by **Surface Combustion Corp., Toledo**.

R. Hoe & Co., Inc., New York, manufacturers of printing presses and industrial saws, has purchased the Jones & Orth Cutter Head Co., cutter head and machine knife producers.

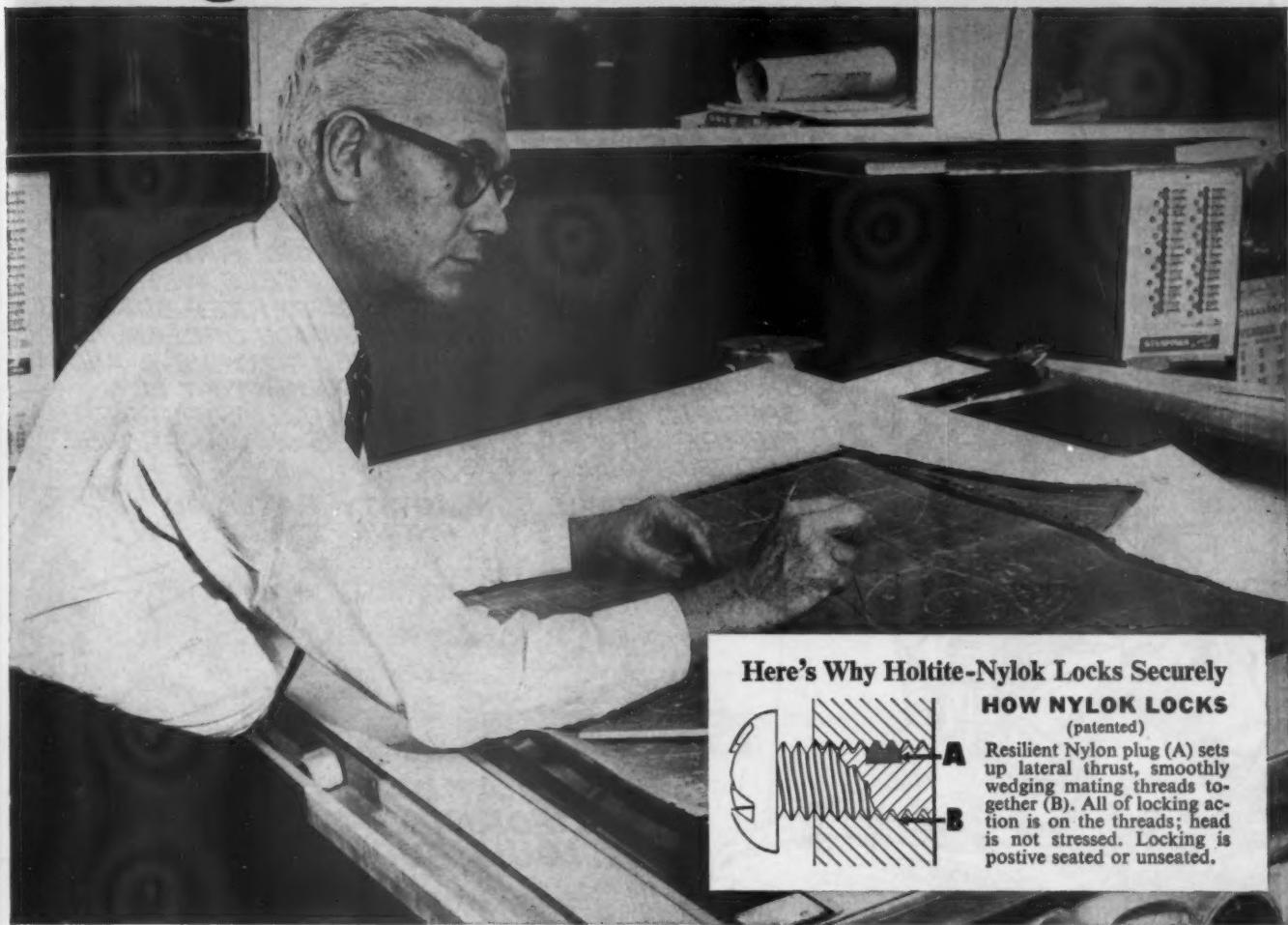
Acme Steel Co., Chicago, has agreed to purchase the property and assets of **Newport Steel Corp., Newport, Ky.**

Mack Trucks, Inc., New York, has acquired the Brockway Motor Co., Inc., Brockway will operate as a separate division of Mack.

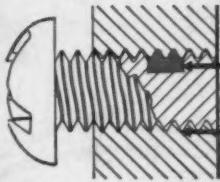


THE WORLD'S LARGEST Boltmaker is being built at National Machinery Co., Tiffin, O., for The Cleveland Cap Screw Co. John Friedland, left, chairman of the board of National, and Frank Kaufman, vice president in charge of product engineering at Cleveland Cap, examine the machine's crankshaft. The Boltmaker will produce giant cap screws 1 $\frac{1}{4}$ " in diameter, 10" long, at rates up to 40 per minute.

The Engineer from Continental Screw Co. ...



Here's Why Holtite-Nylok Locks Securely



HOW NYLOK LOCKS (patented)

Resilient Nylon plug (A) sets up lateral thrust, smoothly wedging mating threads together (B). All of locking action is on the threads; head is not stressed. Locking is positive seated or unseated.

...will study your specific requirements for Holtite Nylok Screws at no cost to you!

Talk to the Engineer from Continental
about 1-piece self-locking screws and bolts

Manufacturers all over the nation are saving time and money by switching to Holtite Nylok Screws. These amazing self-locking screws and bolts eliminate safety wire, lock washers, jam nuts, and various other locking devices.

The secret behind their smooth efficiency is a nylon insert in the threaded section which provides a positive-locking action. Seated or unseated, they lock where they stop. Our engineers will be happy to study your specific requirements and make the correct recommendations *at no cost to your company*.

Remember, Holtite Nylok Screws and Bolts give you these advantages:

1. Positive locking
2. One piece; eliminates separate auxiliary parts
3. Readily replaced
4. Interchangeable
5. Re-usable
6. Locks seated or unseated.
7. Defies vibration
8. No harm to mating threads of parts
9. Acts as a seal for gases and liquids under high pressures
10. Locks where it stops

It will pay you to talk over your fastener problems with the Continental Engineers.

Only Continental Engineers Are Required To Have This Training

Each engineer at Continental is required to undergo thorough experience producing ground thread taps and gages, with their exacting screw thread dimensions. This special training is passed on to you—at no extra cost.



You Can Always Count on Continental
Continental Screw Co.

Manufacturers of Holtite Fastenings
New Bedford, Massachusetts, U.S.A.

For More Information Circle No. 381 on Inquiry Card—Page 17

ALONG THE WAY... OF **TWA**

FRENCH REELS KEEP U.S. FISH IN A SPIN ... VIA **TWA**



IN AMERICA... THE BASS WERE BITING; POPULAR BRETON SPINNING REELS WERE PULLING THEM IN. PROBLEM: TO KEEP SUPPLY OF PRECISION-MADE REELS APACE OF DEMAND. SOLUTION: REELS ARE TRUCKED TO GENEVA AND SHIPPED VIA TWA AIR FREIGHT AT LOW SPECIFIC COMMODITY RATE. U.S. IMPORTER PIERRE J. R. BAPTISTE SAVES ON WAREHOUSE AND STORAGE COSTS.

KNOW SPECIFIC COMMODITY RATES ON YOUR PRODUCTS? PHONE TWA NOW!



PICKED AT DAWN IN CALIFORNIA FOR ST. LOUIS SUPPER...

IN SEASON, NEARLY 1400 LBS. OF CHOICE CALIFORNIA STRAWBERRIES DAILY FLY TWA AIR FREIGHT TO BETTENDORF'S "MOST COPIED FOOD STORE CHAIN IN AMERICA" AT ST. LOUIS, ARRIVING EIGHT HOURS AFTER PICKING. NO SPECIAL PACKING. FOR FAST DELIVERY, CALL TWA SAVE TIME... MONEY.

SUPER-G "BOOKED AIR FREIGHT"

WHEN YOU WANT TO MAKE SURE YOUR COAST-TO-COAST SHIPMENTS MOVE ON SCHEDULE... CALL NEAREST TWA OFFICE AND ASK ABOUT SUPER-G "BOOKED AIR FREIGHT." CARGO CONSULTANT WILL EXPLAIN THIS EASY, QUICK, SURE SERVICE.

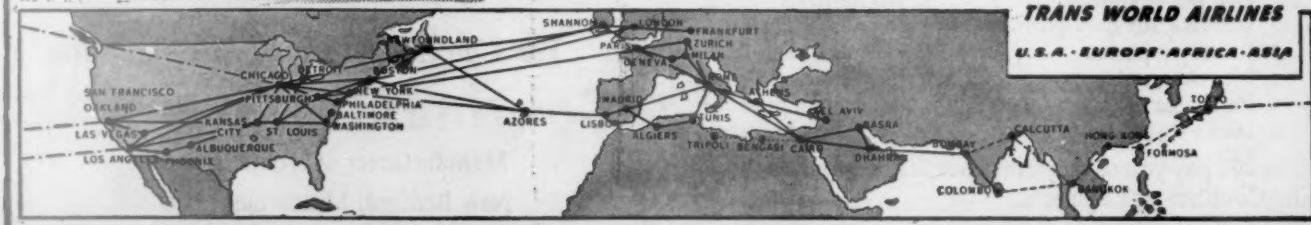


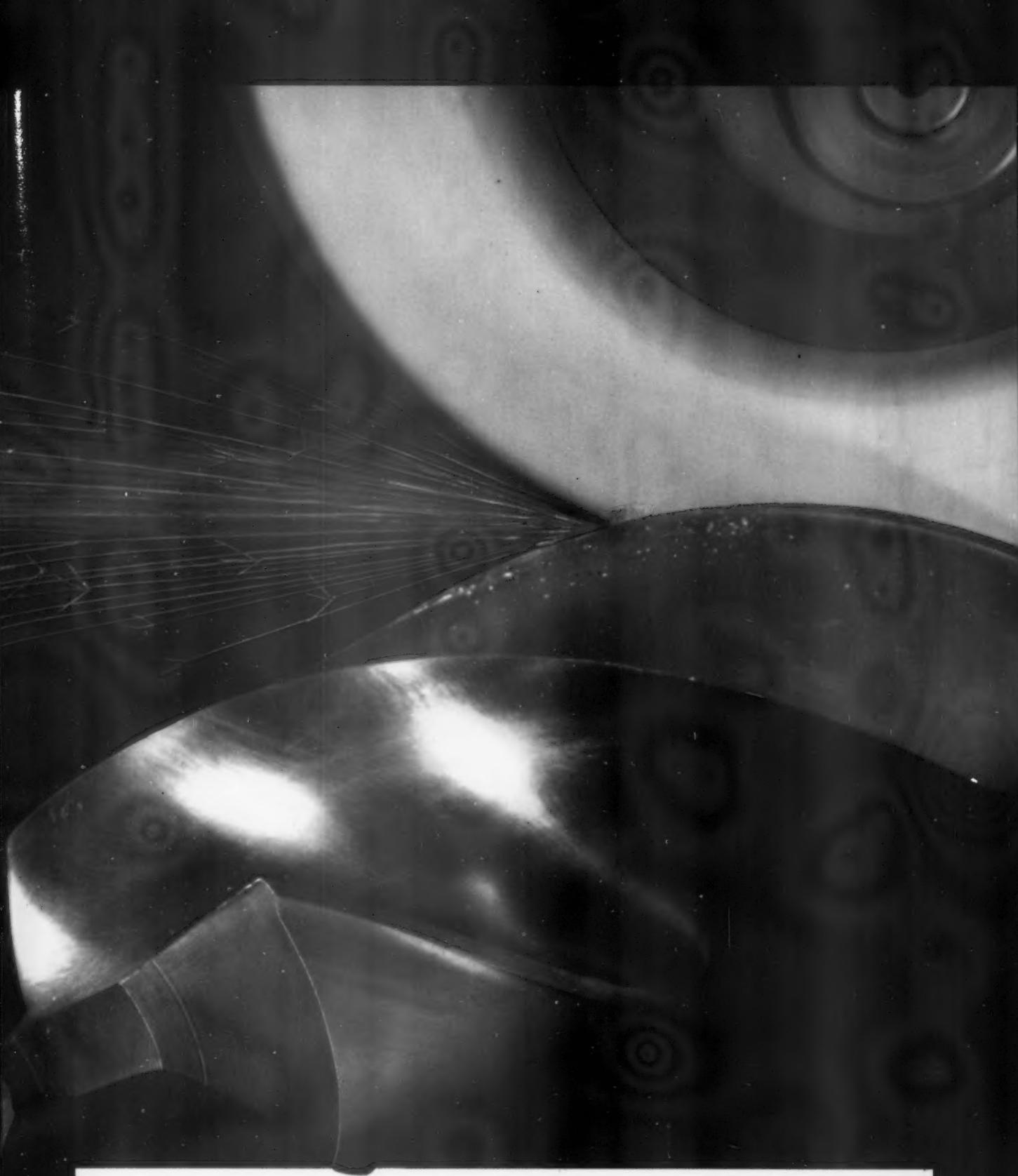
All TWA Flights carry Air Mail,
Air Express and Air Freight



TWA

TRANS WORLD AIRLINES
U.S.A.-EUROPE-AFRICA-ASIA





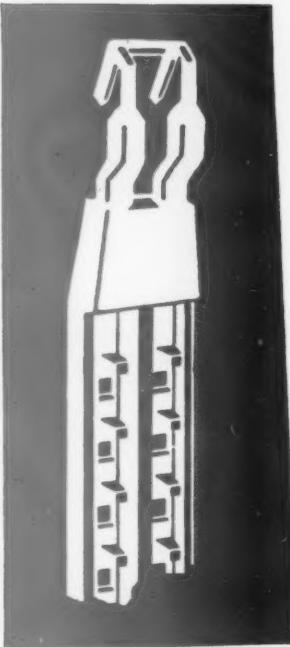
HAMMER FORGED *plus* POLISHED FLUTES

This hammer forged drill (a GTD-AMPSCO specialty) even without polished flutes would still be a superior drill! Polishing the flutes, which means

improved chip slippage, reduced friction heat and a tendency to reduce power consumption, give it still *another* plus value. All this at no extra cost to you!

AMPCO TWIST DRILL DIVISION

GREENFIELD TAP AND DIE CORPORATION
GREENFIELD, MASS.



Because the confidence of PA's helps build our business, we follow these Four Basic Policies ...

1. PRODUCT QUALITY — Our non-ferrous alloys, solders, fluxes, plating materials and electro chemicals are made under strict quality control. They are as good as we can make them. They meet specifications consistently from lot to lot.

2. PRICE — We have large investments in research and quality control. Yet our products are competitively priced. They are sold always on the basis of a fair profit for the services rendered. That is the way we buy, too.

3. AVAILABILITY — We stock non-ferrous materials at convenient shipping points. And there are 12 Federated plants in principal industrial locations throughout the United States.

4. RELIABILITY and SERVICE — We stand solidly behind every product we deliver. Field servicemen are available to all our customers. Without charge, these experienced men will help you to get the most from the products that you buy.

Federated Metals

DIVISION OF AMERICAN SMELTING AND REFINING COMPANY
120 BROADWAY, NEW YORK 5, N. Y.

In Canada: Federated Metals Canada, Ltd., Toronto and Montreal

Aluminum, Anodes, Babbitts, Brass, Bronze, Die Casting Metals, Lead, Lead Products, Magnesium, Solders, Type Metals, Zinc Dust

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Chrysler Corp., Detroit, has purchased 1,700 acres in Troy Township, near Detroit, for possible future expansion of its engineering and research facilities.

The manufacture of machine screw nuts is now in process at the **Southern Screw Co., Statesville, N. C.**

Pyramid Plastics Co., Chicago, has been acquired by **Michigan Chrome and Chemical Co., Detroit**.

Erie Resistor Corp., Erie, Pa., has added a new plant in the Los Angeles area to its Electro-Mechanical Division.

Wedgeplug Valve Co., Inc., an affiliate of Stockham Valves & Fittings, has moved its entire plant operation to Birmingham, Ala.

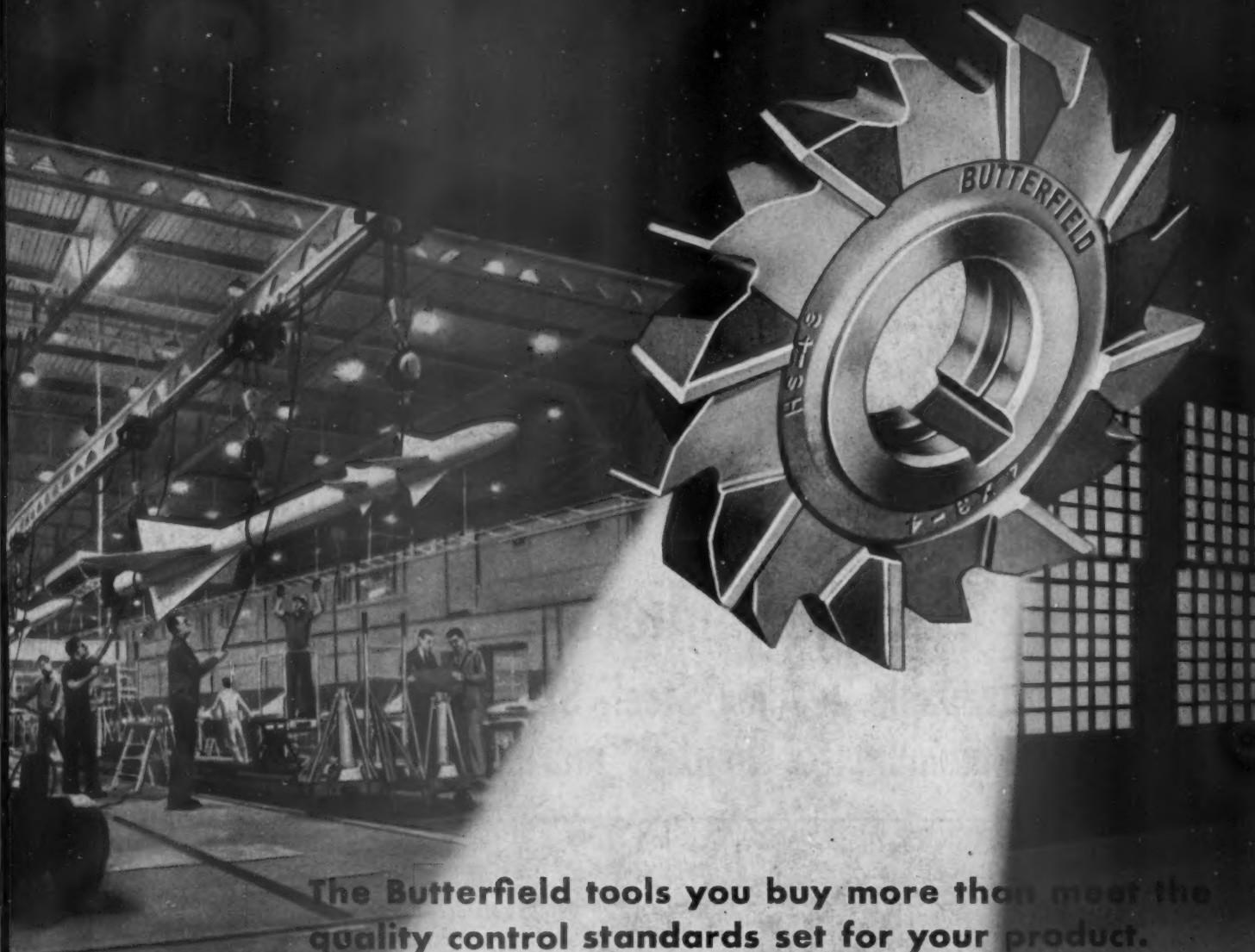
Arwood Precision Castings Corp., New York, has extended its production facilities to include finishing-machining of both ferrous and non-ferrous castings to customer specifications.

A \$9,000,000 building and tooling program for **LeTorneau-Westinghouse Co., Peoria, Ill.**, has been announced. A modern building of 300,000 sq. ft. is being built next to the present plant in Peoria. Completion is scheduled for April, 1957. The program is expected to increase production by a considerable amount.

Garfield Chemical and Mfg. Corp., Garfield, Utah, a jointly owned facility of American Smelting and Refining Co. and Kennecott Copper Corp. is expanding production of sulfuric acid to 1,100 tons a day. It is building its fifth contact process sulfuric acid plant at Garfield.

PURCHASING

BUTTERFIELD



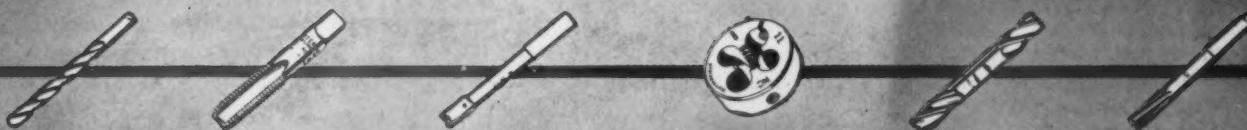
The Butterfield tools you buy more than meet the quality control standards set for your product.

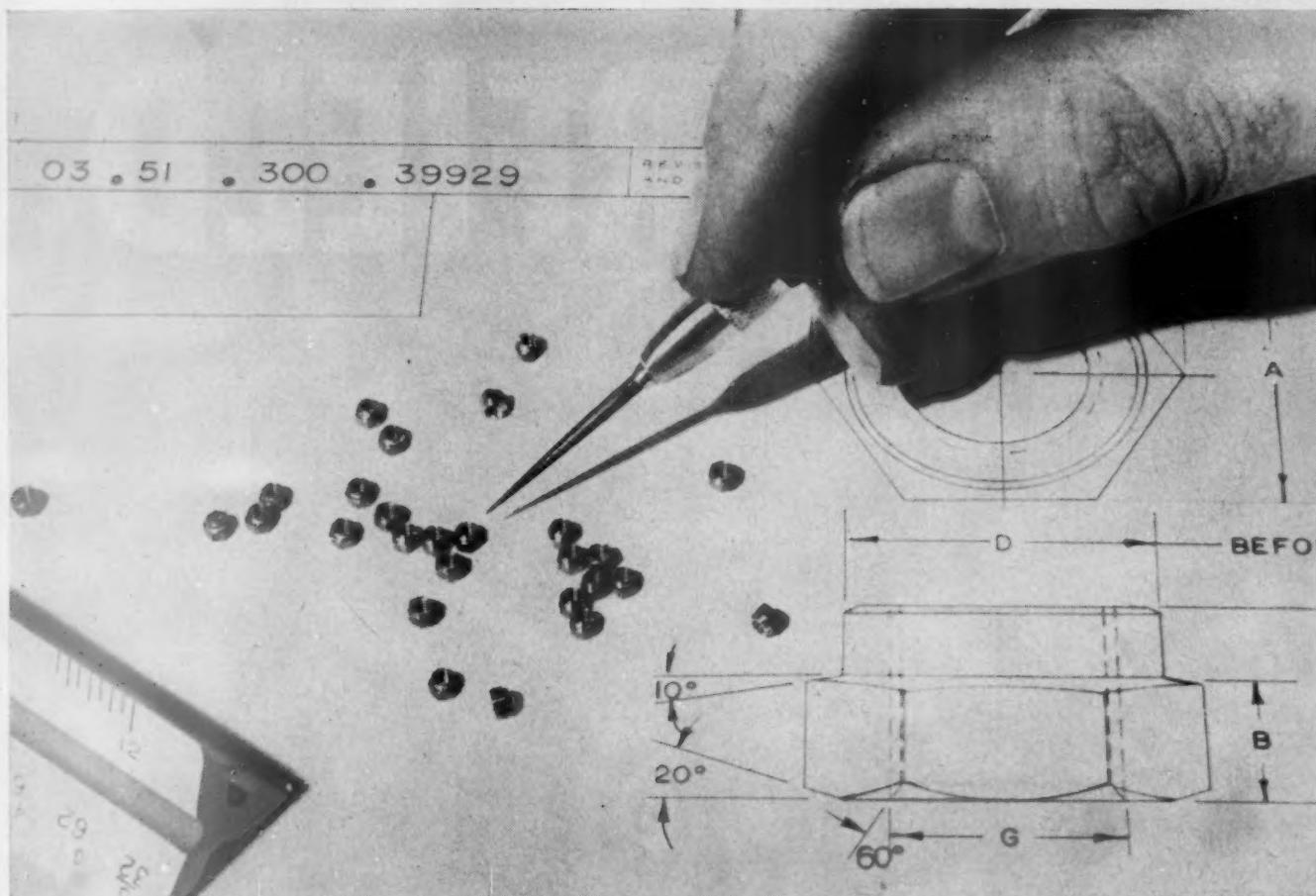
- Long Cutting Mileage
- Smoother Finishes
- Guaranteed Top Performance

Use Your Local
Butterfield Distributor
To Your Advantage.

You get lower inventory costs,
expert counsel and "hurry-up"
service.

UNION TWIST DRILL COMPANY
BUTTERFIELD DIVISION
DERBY LINE, VERMONT, U.S.A.





FLEXLOC MICROSIZE locknuts meet designers' needs for tiny precision nuts that retain strength and holding power in the smallest assemblies—servomechanisms, electronic and electrical equipment, all miniature devices.

New FLEXLOC Microsize Locknuts

Now available in Alloy Steel, Stainless Steel, Brass and Aluminum for lighter, more compact designs

SIZE	Across Flats		Shoulder Height		Across Corners	Height +.000 -.003		
	MAX.	MIN.	MAX.	MIN.				
0-80 NF-3B	.111	.107	.047	.042	.123	.075		
1-64 NC-3B	.127	.123	.0635	.0585	.141	.090		
1-72 NF-3B	.127	.123	.0635	.0585	.141	.090		
2-56 NC-3B	.158	.153	.068	.063	.176	.105		
2-64 NF-3B	.158	.153	.068	.063	.176	.105		
3-48 NC-3B	.190	.183	.071	.066	.210	.120		
3-56 NF-3B	.190	.183	.071	.066	.210	.120		
4-40 NC-3B	.190	.183	.072	.067	.210	.120		
4-48 NF-3B	.190	.183	.072	.067	.210	.120		



New FLEXLOC Microsize locknuts are smaller and lighter than regular FLEXLOCS of the same nominal diameter. Wrenches of smaller size are used to install them. Mating joints or flanges can be designed smaller—with no loss in strength or convenience of assembly.

Microsize FLEXLOCS have all the advantages of larger FLEXLOCS. One-piece, all-metal construction—nothing to put together, come apart, lose or forget. Use them as lock or stop nuts—they stay put anywhere on a threaded member as soon as the locking threads are fully engaged. Uniform locking torques insure accurate preloading. There are no nonmetallic inserts to pop out or deteriorate. Moisture, dryness, oil won't affect these Microsize FLEXLOCS. Just screw them on. They lock and stay locked. Vibration won't shake them loose.

For complete information on Microsize FLEXLOCS, consult your authorized SPS distributor. Or write STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

STANDARD PRESSED STEEL CO.

FLEXLOC LOCKNUT DIVISION

SPS

JENKINTOWN PENNSYLVANIA

SPECIFICATIONS: Available in brass (plain or cadmium plated) and aluminum (plain or chemically treated), for temperatures to 250°F; alloy steel, 18-8 stainless, for temperatures to 550°F.

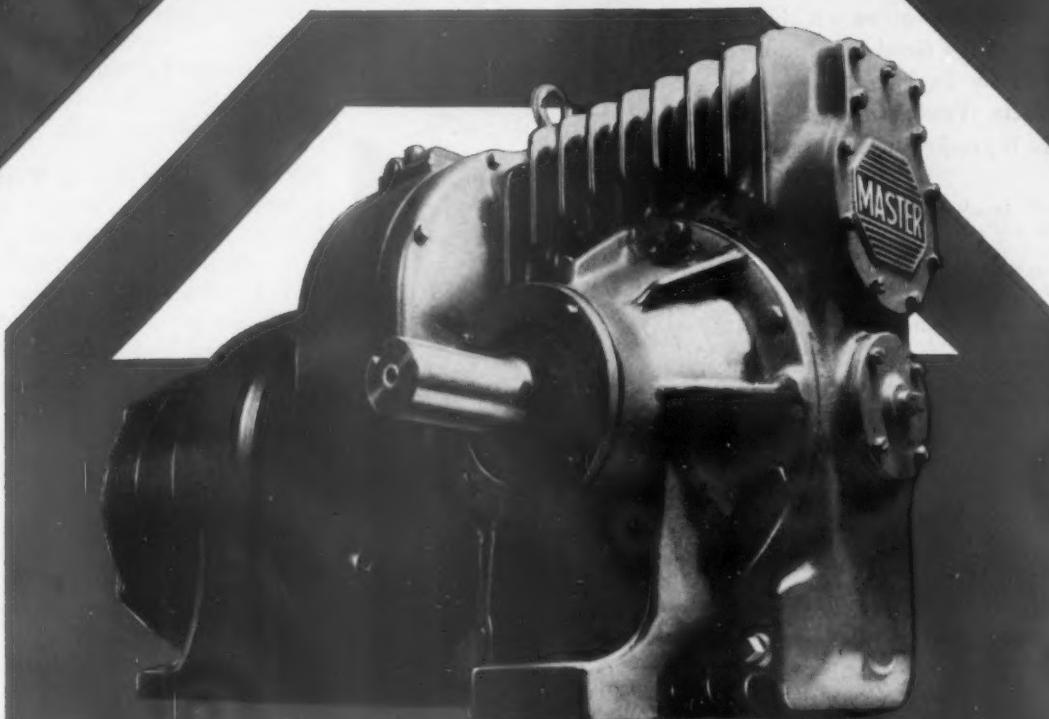
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For More Information Circle No. 387 on Inquiry Card—Page 17—
PURCHASING

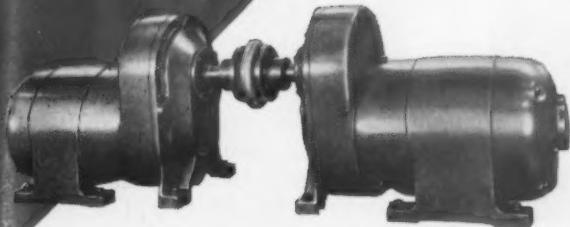


still the All-American First

Master Gearmotors have given more millions of hours of satisfactory service in the field than all other makes combined.



CONTINUOUS LIFE TESTING
MAINTAINS
CUSTOMER SATISFACTION



How can we help YOU?

For five years without stopping, these two 326 frame single reduction gearmotors were run continuously 24 hours a day at full load, one as an induction generator, the other as a gearmotor. When shut down and inspected, Master's conservative design showed *gear wear of less than .001"*.

THE MASTER ELECTRIC COMPANY • Dayton 1, Ohio

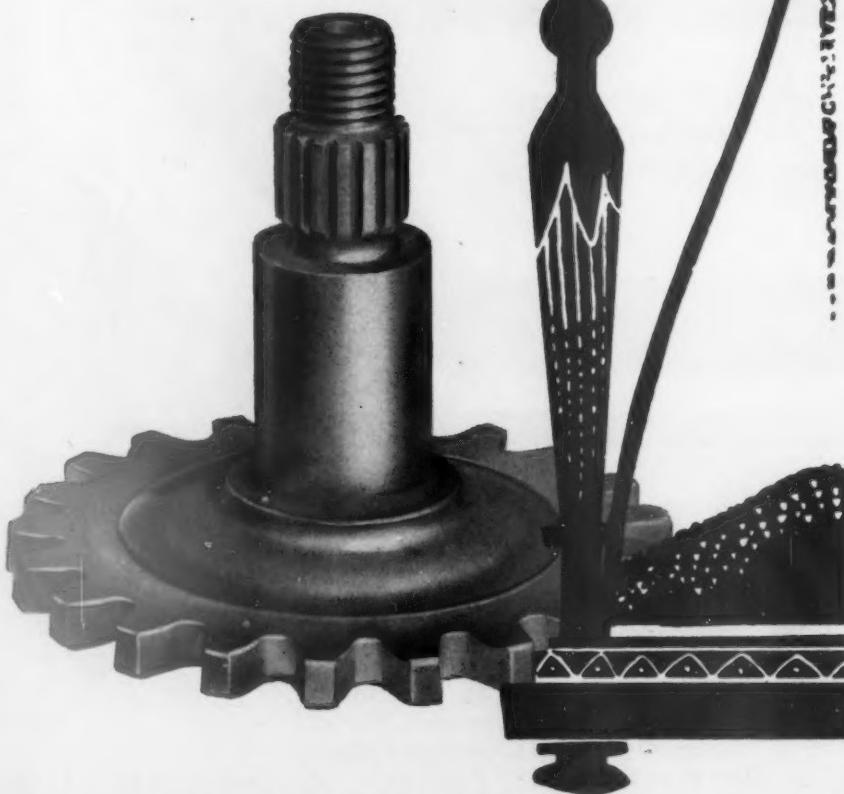
**Precision gears
custom-made by Perkins**
*meet your specs
and your time-table*

Throughout industry, the name PERKINS in association with GEARS has long been symbolical with quality and service. Hence — be they washing machines or supersonic aircraft engines — if the component gears of the finished product are custom-made by Perkins, they will be better products. You furnish the specifications, we'll produce the gears!

PERKINS MAKES in all materials, metallic or non-metallic, and in any size, to your specifications: helical gears, bevel gears, sprockets, ratchets, worm gears, spur gears with shaved or ground teeth, ground thread worms.

NOTE: The PERKINS PRECISION SPRING COILER is the latest development in the spring coiler field and eliminates entirely the use of arbors and long set-up time. It is a complete self-sufficient machine and enables you to make the spring you want when you want it — in seconds. The coiler produces any type of spring, in any diameter and any pitch with this range: Wire Sizes .005 to .125. Diameter from 3/32" to 12" and larger. Size of the compact coiler is only 7½ x 16". A POWER MODEL mounted on a welded steel console cabinet base is also available. Full information on request.

Perkins Machine & Gear Co.
107 Circuit Ave., West Springfield, Mass.



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industry

Construction of a new, large west coast warehouse for electrical distribution systems, fittings and accessories, has been announced by National Electric Products Corp., Pittsburgh. The Los Angeles facility is scheduled for completion next month.

Union Bag-Camp Paper Corp., New York, has purchased the assets and business of American Creosoting Co., Louisville, Ky. It now becomes American Creosoting Corp., a wholly owned subsidiary of Union Bag-Camp Paper Corp.

As the initial phase of its \$3,000,000 expansion program, Alter Co., Davenport, Iowa, has purchased the Davenport Besler Corp. Alter is installing, in the new location, additional electric furnace facilities for the production of master nickel alloys. Its present capacity will be increased by 400%.

The Shenango Furnace Co., Pittsburgh, has consolidated its subsidiary, Shenango-Penn Mold Co., into the parent organization.

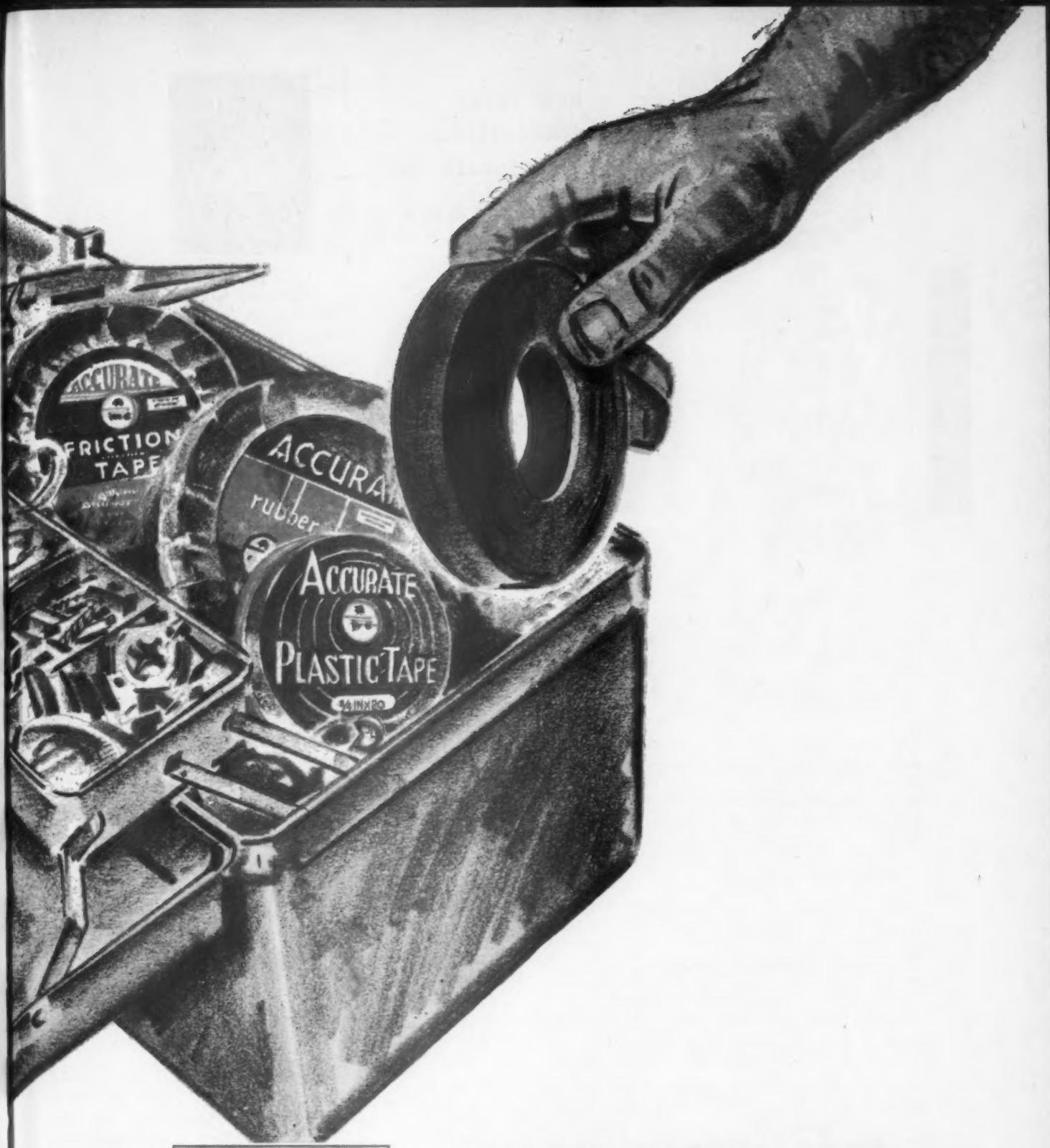
Construction is well underway on the addition to the plant of the Ajax Flexible Coupling Co., Inc., Westfield, N. Y. The new addition will double the production of Ajax's dihedral gear type and rubber-bronze bushed flexible couplings.

The General Scientific Equipment Co. has moved to larger quarters at 7516 Limekiln Pike, Philadelphia.

The construction of two steel buildings at Parlin, N. J., has been completed, according to an announcement from Hercules Powder Co., Inc., Wilmington. They are part of a \$10,000,000 plant earmarked for the production of industrial and household items.

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PURCHASING



he's

reaching for...

the Best ELECTRICAL TAPE...

ACCURATE TAPE

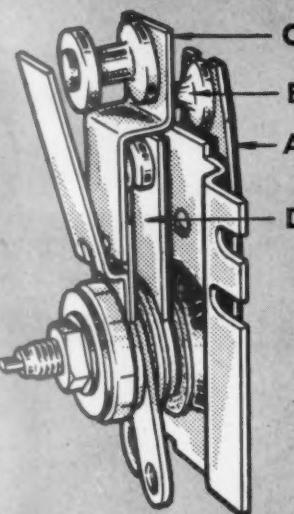
FRICITION, RUBBER SPLICING,
and PLASTIC TAPES

ACCURATE MANUFACTURING COMPANY
Garfield, New Jersey

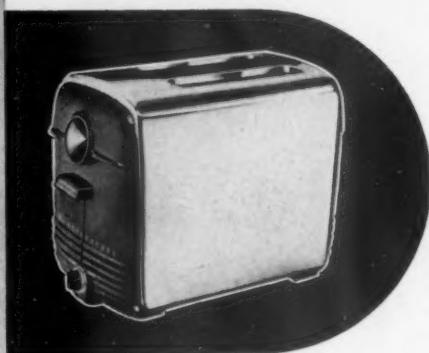
WORLD'S LARGEST EXCLUSIVE MANUFACTURER OF ELECTRICAL TAPE



HOW CHACE
THERMOSTATIC
BIMETAL ACTUATES THE
WESTINGHOUSE



Westinghouse Elec.
Corporation
Mansfield, Ohio



**Pop-Up
Toaster**

Uniform toasting in just 90 seconds is featured by this new Westinghouse pop-up toaster. A new type of heating element is combined with a reflector on each side of the two slices. Its unique dual element thermostat compensates for variations due to voltage fluctuations and reduced browning of the second and third slices. The controlling elements are accurate, dependable Chace Thermostatic Bimetal, of course.

The operation of the thermostat is ingenious: the right hand bimetal element (A) controls the temperature of the air in the toasting chambers, hence the degree of browning. This highly responsive bimetal is positioned so it is exposed to the radiation from the heating element. High voltage (more heat) makes the element deflect to the left and the ceramic point (B) moves the upper spring-mounted contact arm at (C), opening the circuit, thus preventing over-browning. When voltage drops, the effect is opposite.

The left hand bimetal element (D) controls browning of second and third slices. Being of a much less responsive type, it is gradually deflected to the left by the ambient temperature in the toaster, moving the contact arm (C) and prolonging the period of the circuit.

Chace Thermostatic Bimetal is available in 28 types, in strip, coil or completely fabricated and assembled elements made to your specification. Write for new 44-page booklet, "Successful Applications of Chace Thermostatic Bimetal," containing interesting uses of bimetal, formulas, calculations, etc.



W. M. CHACE CO.
Thermostatic Bimetal
1635 BEARD AVE., DETROIT 9, MICH.

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industry

National Starch Products Inc., New York, has acquired the Met-lok Division, Sound Electronics, Inc.

Edgewater Steel Co., Pittsburgh, has announced an expansion program for its plant in Oakmont, Pa.

Announcement has been made of the merger of Thermistor Corp. of America and Vibro-Ceramics Corp. with Gulton Mfg. Corp., which has changed its name to **Gulton Industries, Inc., Metuchen, N. J.**

A modern ceramic plant is being built in State College, Pa., by **Erie Resistor Corp., Erie, Pa.** The plant will house the latest equipment for mass producing quality ceramic dielectrics and other special ceramic parts.

A two-year expansion program of **International Packings Corp., Bristol, N. H.**, is well underway. Initial plans call for the erection of a highly specialized department which will manufacture custom-designed silicone and synthetic rubber products for the automotive, appliance, hydraulic and other industries.

Construction will be started soon on a new Transite asbestos-cement pipe plant at Denison, Texas, according to an announcement from **Johns-Manville Corp., New York**.

A 235,000 sq.ft. plant is being built for **Progress Mfg. Co., Inc., Philadelphia**. The new plant will expand Progress's production area by 65%.

Potter & Brumfield, Inc., Princeton, Ind., is expanding its production facilities by more than 125,000 sq.ft.

For More Information Circle No. 391
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PURCHASING

"Same Day" Shipment

from Ex-Cell-O's huge stock of precision
Drill Jig Bushings

Whatever your requirements, Ex-Cell-O's complete bushing service will give you full satisfaction with every order! For your convenience, Ex-Cell-O maintains huge stocks of precision Drill Jig Bushings, and efficient expediting facilities which make possible "same day" shipment. This means orders are filled and dispatched from complete inventories in New York, Detroit, Los Angeles and London, Ontario, within a few hours after they are received!

Made of wear-resistant bearing steel, Ex-Cell-O Drill Jig Bushings are precision ma-

chined to meet Ex-Cell-O's rigid quality standards. Ex-Cell-O's exclusive hardening process produces bushings guaranteed uniform within 62-64 Rockwell "C". All Ex-Cell-O bushings are heat treated in Ex-Cell-O's atmosphere-controlled equipment. You can count on the tested and proved superiority of these high chrome, high carbon, oil hardening bearing steel bushings.

Call, wire or write Ex-Cell-O for the world's finest, fastest and most complete bushing service!

1. Headless Press Fit Bushings are used when center distances are too close for bushings with heads. 2. Head Liners are used (in place of headless liners) when excessive pounding is involved. 3. Fixed Renewable Bushings are used with liners when replacement bushings are required during the life of the jig. 4. Slip Renewable Bushings are used with liners when two or more operations require change. 5. Headless Liners are pressed permanently into the jig plate for accurate replacement of renewable drill bushings. 6. Head Press Fit Bushings are used when bushing replacement is not required during the life of the jig.

For your engineering and purchasing files: The complete Bushing Guide. Pictures and describes A.S.A. standard bushings, lists hundreds of Ex-Cell-O bushings available from stock. Write for as many copies as you need.

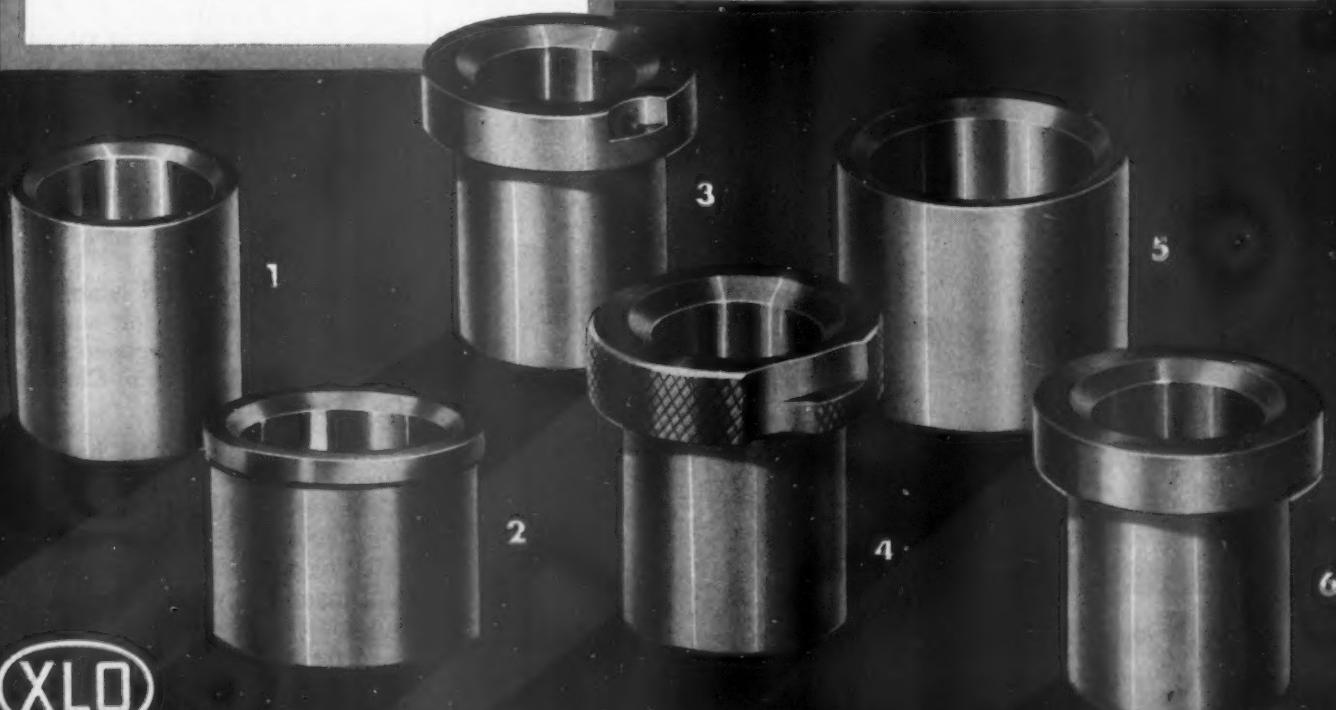


EX-CELL-O
CORPORATION

DETROIT 32, MICHIGAN

MANUFACTURERS OF PRECISION MACHINE TOOLS • GRINDING SPINDLES
CUTTING TOOLS • RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS
AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

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off the shelf service

of ACME Precision Chains

saves you time and money!



Your Acme Distributor has the chain you need
RIGHT IN STOCK - ON THE SHELF!



FREE CHAIN CATALOG

Write Dept. 8-C for your 80-page copy of Acme's latest catalog. Packed with valuable chain data. An indispensable chain reference.

Single strand roller chain is always available in 10 and 25 foot lengths at your Acme distributor.

Neatly packaged in clean convenient cartons, plainly marked for easier handling and shipping. Packaging eliminates dirt, prevents damage to chain. Available in all standard sizes. Another Acme service you'll find most useful and economical. Reels also available for handling large quantities of Acme Chain. See your Acme distributor.



Call
ACME
for Service



For More Information Circle No. 392 on Inquiry Card—Page 17

industry

Circo Equipment Co., Rahway, N. J., has formed a wholly-owned subsidiary, Circo Cleaning & Finishing Equipment Corp. The new firm will produce metal parts washers, power spray washers, dryers, ovens and complete finishing systems.

The Organic Chemicals Division, Monsanto Chemical Co., St. Louis, has added to its production capacity for Mersize fortified rosin size used in paper production with a new facility at Fieldsboro, N. J.

A new concrete forming equipment plant has been opened in San Leandro, Calif., by Symons Clamp & Mfg. Co., Chicago.

Fuller Co., Catasauqua, Pa., has acquired the Lehigh Fan & Blower Co., Allentown, Pa. Lehigh now becomes the Lehigh Fan & Blower Division of the Fuller Co.

Plans are underway for the construction of a production application laboratory in North Tonawanda, N. Y., by Hooker Electrochemical Co., Niagara Falls, N. Y.

A new formaldehyde and synthetic resin plant is nearing completion in Fayetteville, N. C., according to the Chemical Division, Borden Co., New York. Scheduled for completion later this year, it will be geared to produce 36,000,000 lbs. of formaldehyde a year. The plant will also serve as a warehouse for polyvinyl acetate and polyvinyl alcohol.

A new office and warehouse distribution center for southern California has been opened in Los Angeles by Monsanto Chemical Co., St. Louis.

A manufacturing site has been purchased in Falsington, Pa., by Kelsey-Hayes Wheel Co., Detroit. Construction is underway on buildings for the manufacture of passenger car wheels for eastern automotive assembly plants.

For More Information Circle No. 393
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**Crucible gives you
wide selection,
dependable delivery of**

Cold Rolled Specialty Steels

For a *full* selection of cold rolled specialty steels — call Crucible. Deliveries are on-schedule — in the size, grade, finish or length you need.

And Crucible's new mill facilities mean closer control of rolling ... insure greater physical uniformity ... fine finish ... better edges ... flatter strip.

Whether you use carbon spring steel, alloy strip steel, or many other ferrous analyses that can be cold rolled, you can't beat Crucible. More information is contained in the 32-page booklet, "Cold Rolled Specialty Steels". Write for your free copy now. *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*



CRUCIBLE

first name in special purpose steels

Crucible Steel Company of America

For More Information Circle No. 393 on Inquiry Card—Page 17

Taft-Peirce Electro*lized* Gages

Last from 2 to 10
times longer

Costing only slightly more than ordinary hardened steel gages, Taft-Peirce Electrolized Gages provide many times longer gage life.

An even film of hard, non-magnetic alloy — only .000025" thick — on all gaging surfaces provides exceptional wear-resistance.

Extremely smooth, this film has a very low co-efficient of friction, with high resistance to corrosion. Extremely tough, it won't chip, peel, or spall.

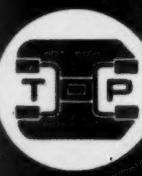
Electrolyzing can be applied to standard or special fixed gages and to CompAIRator Air Gage members. Accuracy is held to the same high standards found in all Taft-Peirce gages. For more details on the complete line of Taft-Peirce Fixed Gages, write for Handbook.



THE TAFT-PEIRCE MANUFACTURING COMPANY, WOONSOCKET, R. I.

For More Information Circle No. 394 on Inquiry Card—Page 17

T-P means
Top Precision





Better Things for Better Living
...through Chemistry

PURCHASING NEWS

PROPERTY AND APPLICATION DATA
ON THIS VERSATILE ENGINEERING MATERIAL:
ALATHON®

Mar. 6, 1956

Du Pont ALATHON® polyethylene resin offers an economical solution to a wide range of problems



PIPE OF ALATHON is tough, flexible, and light in weight. It can be coupled without threading; the only tools required are a knife and a screwdriver. Pipe of ALATHON is substantially unaffected by concentrated hydrochloric and hydrofluoric acids—remains unchanged with age, assuring long trouble-free service.



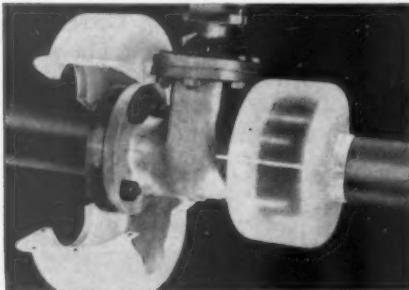
INSULATION AND JACKETING OF ALATHON have outstanding dielectric characteristics. Linemen find wire jacketed with ALATHON easy to handle, lightweight, and pliable. The toughness and weather resistance of ALATHON assure long service life. In addition, ALATHON provides superior heat and abrasion resistance.



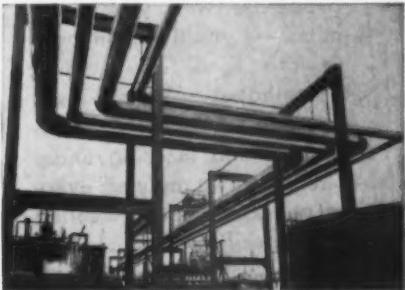
LINERS OF ALATHON are easy to handle due to flexibility and light weight. Liners fit readily to the dimensions of standard industrial containers. Low water absorbency and chemical resistance are important features. (Film extruded by H & R Industries, Nazareth, Pa., for Crystal-X Corp., Lenni Mills, Pa.)



SHEETS OF ALATHON provide $\frac{1}{8}$ " corrosion-resistant lining for this chemical fume system. By heat-welding sheets together, large areas can be protected against the attack of most common chemicals. Because they are made of ALATHON, these sheets assure long-lasting protection. (Lining of ALATHON manufactured by American Agile Corporation, Bedford, Ohio.)



FLANGE SHIELDS OF ALATHON offer many advantages over those made of metal. Because the shields are translucent, they permit visual detection of leaks. They are resistant to most chemicals and need no maintenance. Snap buttons of ALATHON are molded on the shields for easy installation. (Manufactured by Wilmington Plastics Company, Wilmington, Del.)



COATINGS OF ALATHON provide protection against moisture and all types of acid fumes. This aluminum pipe jacketing coated with ALATHON permits installation in chemical environments not otherwise practical. ALATHON is permanently bonded to the aluminum jacketing; assures freedom from corrosion. (Jacketing by Aljon Mfg. Co., Inc., Maspeth, N. Y.)

For industrial and consumer products . . . ALATHON polyethylene resin is suitable for a continuously expanding range of applications. Du Pont ALATHON is now used in the food, pharmaceutical, cosmetic, toy, household goods, and packaging industries. It is used to make thousands of products, from storage battery parts to squeeze bottles, from

housewares to hypodermic syringes. You may find that the excellent electrical characteristics, high chemical resistance, toughness and flexibility of ALATHON are helpful in your operation. Specific data and product information are available, without obligation. Learn how ALATHON can satisfy your requirements by mailing the coupon below.

NEED MORE INFORMATION?

Clip the coupon for additional data on the properties and applications of this Du Pont engineering material.

E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Department
Room 3710, Du Pont Building, Wilmington 98, Delaware.

In Canada: DuPont Company of Canada Limited, P.O. Box 660, Montreal, Quebec.

Please send me more information on Du Pont ALATHON. I am interested in evaluating this material for _____

Name _____ Position _____

Company _____

Street _____ City & State _____



Whether we start from scratch or are called on to cooperate with your engineers — you'll find it pays to use K & J's molding know-how.

With engineering, mold-making and molding under one roof, we assume every responsibility for meeting your specifications . . . for custom-molding plastics to the highest performance standards.

Send for brochure, "A Service to Users of Compression Molded Plastics."

Write for Free Catalog



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1202 Southard St., Trenton 8, N.J.

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55 West 42nd St., New York, N. Y.
Phone PEnn 6-0346

Wm. A. Chalverus
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Phone 1-3170-J2

Wm. T. Wyler
Box 126, Stratford, Conn.
Phone Bridgeport 7-4293

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suppliers

Huck Mfg. Co., Detroit, has appointed Daniel R. Bortner a sales engineer. He will cover Maryland, eastern Pennsylvania, Delaware, and southern New Jersey.

William Lucardi has joined the sales staff of **Morse Twist Drill and Machine Co., New Bedford, Mass.**, as a representative in western Massachusetts.

The appointments of six men to managerial positions have been announced by **The Carpenter Steel Co., Reading, Pa.** Richard P. Evans is now assistant to the vice president in charge of sales; Robert P. Uhl is now New York district manager; Charles E. Miller is branch manager at Houston; O. T. Thompson is branch manager at Detroit; J. C. Murray becomes assistant branch manager in Pittsburgh; and Harry L. High, Jr., is assistant branch manager in Cincinnati.

Carbide and Carbon Chemicals Co., a division of Union Carbide and Carbon Corp., New York, has moved its New York district sales offices to 100 East 42nd St.

Robert B. Davison has been made sales manager of the **Diamond Division, Cannon Electric Co., Wakefield, Mass.**

John M. Connors has been appointed assistant to the general sales manager of **Wabash Fibre Box Co., Terre Haute, Ind.**

Robert C. Fenton, Jr., and Richard L. Noon have been made sales representatives for **Stanley Pressed Metal, a division of The Stanley Works, New Britain, Conn.**

Walter L. Brink has been named sales engineer to direct the operations of the new factory branch office in Pittsburgh of **Combustion Control Division, Electronics Corp. of America, Cambridge, Mass.** He will cover western Pennsylvania, West Virginia and part of Maryland.

Gilman Paper Co., New York, has appointed Frank X. Moynihan to the sales organization of its Standard Products Division.



A VERTICAL CASTING WHEEL is in full operation at the Garfield, Utah, refinery of Kennecott Copper Corp., New York. The facility, weighing well over 500 tons, is the first of its kind to be installed and placed in operation in this or any other country for the purpose of forming "cakes" of refined copper. The refinery is now producing 40 tons per hour of electrolytically pure copper in 2,000 lb. cakes and 105 lb. billets.



THIS TEAMWORK PAYS OFF for You!

Whenever you need a lift with a fastener problem enlist the help of your Lamson salesman, or the Industrial Distributor salesman who sells you Lamson products.

Either can call in "ELL" & "ESS" for expert assistance . . . and at no cost to you.

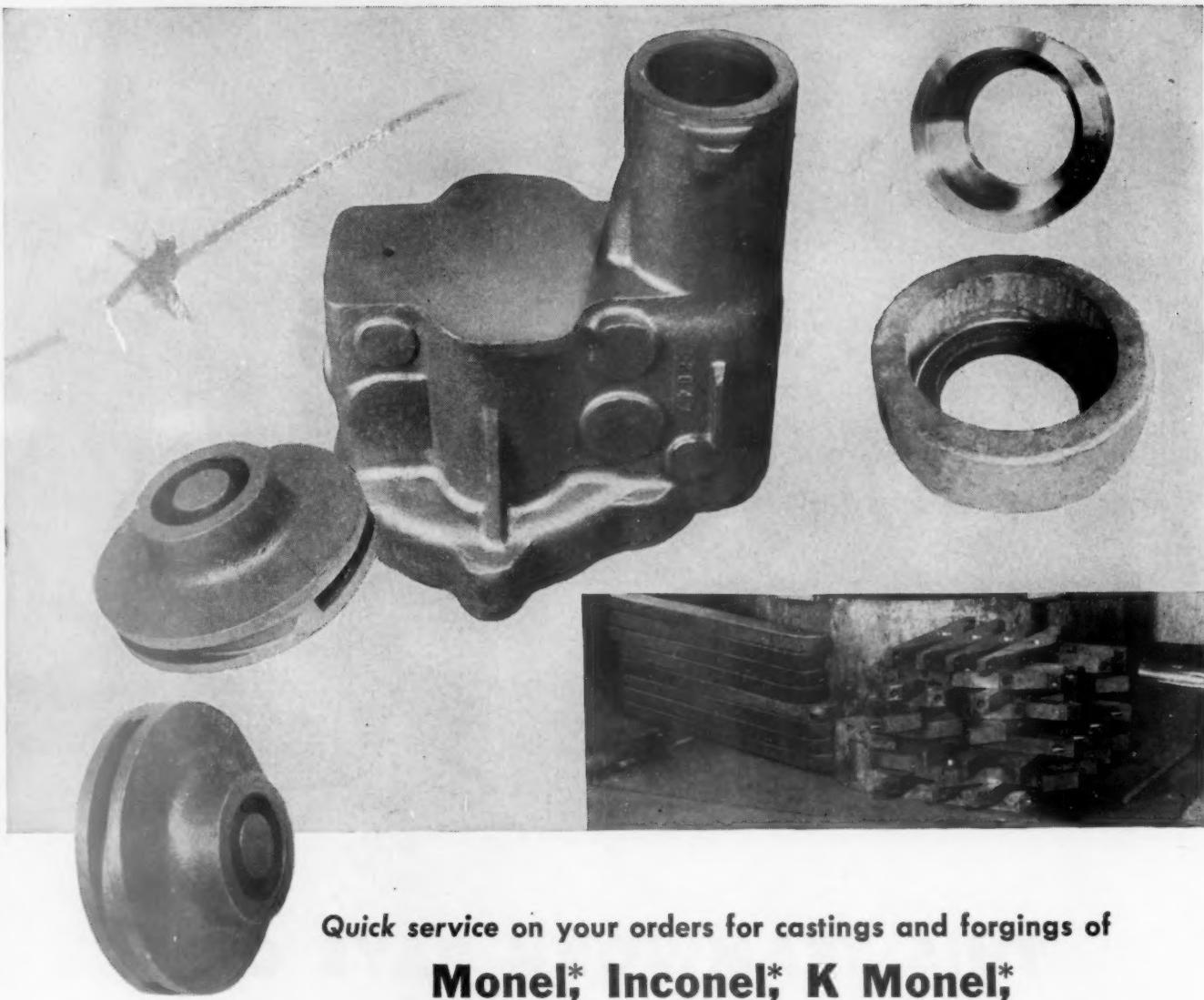
"ELL" & "ESS" represent the many extra services that Lamson & Sessions offer its customers. These include engineering counsel, selecting the right fastener for the job or suggestions for production economies.

This kind of teamwork is yours for the asking from Lamson & Sessions, the country's leading bolt and nut manufacturer.



1971 West 85th Street • Cleveland 2, Ohio
PLANTS AT CLEVELAND AND KENT, OHIO • BIRMINGHAM • CHICAGO

For More Information Circle No. 397 on Inquiry Card—Page 17



**Quick service on your orders for castings and forgings of
Monel*, Inconel*, K Monel*,
70-30 Copper-Nickel**

Any time you need any of these or other nickel alloys, you can count on Philadelphia Bronze & Brass for prompt delivery. We can cast or forge pieces up to 5000 pounds, in our completely equipped foundry and forge facilities.

Over 30 years of experience in non-ferrous work is ready to serve you. Our responsibility can cover your full requirements, including pattern making, alloying of special materials, casting, forging and rough or finish machining.

Strict quality control assures adherence to your

specifications. We use certified materials from International Nickel Company for forgings. For castings, we alloy only virgin metals. Advanced test equipment is used for checking quality and uniformity.

Write today for our catalog describing our facilities and line of non-ferrous alloys . . . including high conductivity copper, Mallory alloys for welding, aluminum bronzes, silicon and manganese bronzes, and titanium alloys. For a quotation on your specific job, call us or any of the many field offices of P. R. Mallory & Co. Inc.

*Trademarks of International Nickel Company

**PHILADELPHIA
BRONZE & BRASS CORP.**

22nd and Master Streets, Philadelphia 21, Pa.

—a subsidiary of

MALLORY
P.R. MALLORY & CO. INC.

For More Information Circle No. 398 on Inquiry Card—Page 17

What size is a quality fastener?



Here are two ELASTIC STOP® nuts.

Each has the familiar red locking collar. Each is self-locking, vibration-proof and can be reused many times. Each is a fast, readily assembled one-piece unit . . . will maintain accurate adjustment anywhere on a bolt. Each will afford positive protection against thread corrosion . . . prevent liquid seepage along bolts. Each is manufactured in quantity. Each is exactly controlled as to quality of raw material, finished dimensions, class of thread fit, seat squareness and finish. Each has a record for precision and uniformly high performance that is unmatched.

But . . . one measures 1/10 inch across the flats; the other, 4 inches. Between these two, there are more than 530 different hex nuts in the ESNA line. They are the result of variations in height, material, finish and size.

Look to ESNA for the top quality self-locking fastener that fits your need best.

ELASTIC STOP NUT CORPORATION OF AMERICA



Elastic Stop Nut Corporation of America
Dept.N58-1015, 2330 Vauxhall Road, Union, N. J.
Please send the following free fastening information:

- ELASTIC STOP nut bulletin Here is a drawing of our product.
What self-locking fastener would
you suggest?

Name _____ Title _____
Firm _____
Street _____
City _____ Zone _____ State _____

For More Information Circle No. 399 on Inquiry Card—Page 17

DOWNTIME

for brake maintenance

REDUCED

as much as 90%

on large
production presses



with

WORLD BESTOS

RED BLOCK combination

On huge hydraulic presses in a well-known automotive body plant, World Bestos brake blocks in the RED BLOCK Combination reduce downtime for brake maintenance as much as 90%—they outlast blocks previously used as much as 10 to 1!

Guaranteed NO-FADE Performance

World Bestos RED BLOCK Combination reduces glaze, eliminates "fading"; assures full friction at high temperatures.

Find out how you can save time and money in your own production processes!

RED BLOCK'S dependable, trouble-free performance and longer wear pay big dividends. Write today for complete information on World Bestos RED BLOCK Combination for industrial brakes in your plant.

WORLD BESTOS

NEW CASTLE, INDIANA

DIVISION OF THE

Firestone

TIRE & RUBBER CO.

For More Information Circle No. 400
on Inquiry Card—Page 17

suppliers

The Sheet Metal Division, Follansbee Steel Corp., Follansbee, W. Va., has named Charles L. Shanoltzer sales manager for its "steel-pride" products.

J. M. Young has been made a sales representative by Leece-Neville Co., Cleveland. He will operate in Florida, the Carolinas, Georgia, Tennessee, Alabama and Mississippi.

The Multi Wall Bag Division, National Container Corp., New York, has announced three sales appointments. George S. Harvey is now general sales manager; Henry C. Hancock has been named central division sales manager; and Tom Brown, Jr., becomes southern division sales manager.

C. Lawrence Bulow, a corrosion metallurgist for Bridgeport Brass Co., Bridgeport, Conn., has been named sales manager of condenser and heat exchanger tubes.

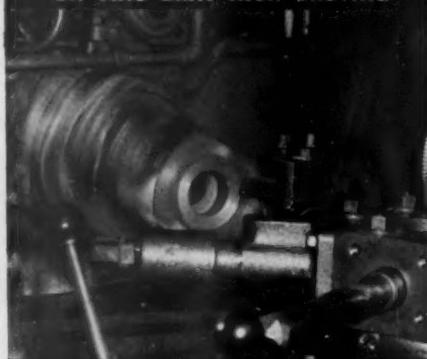
Baldwin-Lima-Hamilton Corp., Philadelphia, has transferred John J. Littley and Byron B. Belden from its Eddystone, Pa., division to the Hamilton, O., division. Mr. Littley becomes sales manager of hydraulic and compacting presses, and Mr. Belden becomes an application engineer for compacting presses.

Sprout, Waldron & Co., Inc., Munsey, Pa., has appointed John N. Mees sales engineer for the New York City area.

The Fontana Fabricating Division, Kaiser Steel Corp., Fontana, Calif., has appointed Harry L. Warner as sales manager.

Universal Wire & Cable Co., Chicago, has opened a warehouse and sales office at 5107 Telegraph Rd., Los Angeles.

UNIT MACHINING COST CUT 17%
ON THIS GRAY IRON CASTING



...thanks to

FERROCARBO®

Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they COST YOU NO MORE...because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

FOR FREE BOOKLET on FERROCARBO, citing actual case histories of faster machining, with longer tool life, write The Carborundum Company, Dept. 32, Niagara Falls, N.Y.

64-52

CARBORUNDUM®

For More Information Circle No. 401
on Inquiry Card—Page 17

HOT DIP GALVANIZING

...EXCELLENT FACILITIES for PICKLING & OILING

Our Record: Over 50 years of progressive galvanizing service to manufacturers and fabricators of iron and steel products . . . any size or shape, any size order from the smallest to the largest. Excellent facilities for pickling and oiling.

"TO ECONOMIZE,
GALVANIZE AT
ENTERPRISE"

ENTERPRISE GALVANIZING CO.

2519 E. CUMBERLAND STREET
PHILADELPHIA 25, PENNSYLVANIA

For More Information Circle No. 402
on Inquiry Card—Page 17

PURCHASING



TRENTWELD stainless tubing shown in Permanent Non-Electric Grate Magnet produced by Eriez Manufacturing Company, Erie, Pa.

how TRENTWELD stainless tubing traps "tramp iron" in product flow...

As free-flowing products such as chemicals, grains, sugar or spices flow through this separator unit, large and small iron contamination is seized by powerful magnets and held firmly to the five stainless steel tubes.

This is a unit that's normally given long, hard use. That's why TRENTWELD stainless steel tubing is chosen to house the Alnico V magnetic elements. For stainless resists abrasion and corrosion . . . its smooth surface offers a minimum of resistance to product flow . . . and stainless is strong—lasts indefinitely. What's

more, stainless is the easiest of metals to keep clean and sanitary.

And equally important to you is the fact that TRENTWELD is made by *tube mill specialists* —by the new, patented *Contour-Weld* Process. That means stainless pipe or tubing with a smoother I.D., free from any weld bead or undercut.

So when you need stainless or high-alloy pipe or tubing, make sure it's TRENTWELD. You can't buy better!

TRENTWELD

STAINLESS STEEL TUBING

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)

For More Information Circle No. 403 on Inquiry Card—Page 17

OCTOBER, 1956

339

YOU CAN GET 43 STOCK SIZES 1/8" to 3"



HALLOWELL
**SOLID STEEL
COLLARS**
**from your
industrial distributor**

All of these precision-machined solid steel collars are size-marked for quick identification, and fitted with the famous self-locking UNBRAKO Socket Set Screw for positive positioning on the shaft. Write for Bulletin 868. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

STANDARD PRESSED STEEL CO.

HALLOWELL POWER TRANSMISSION DIVISION

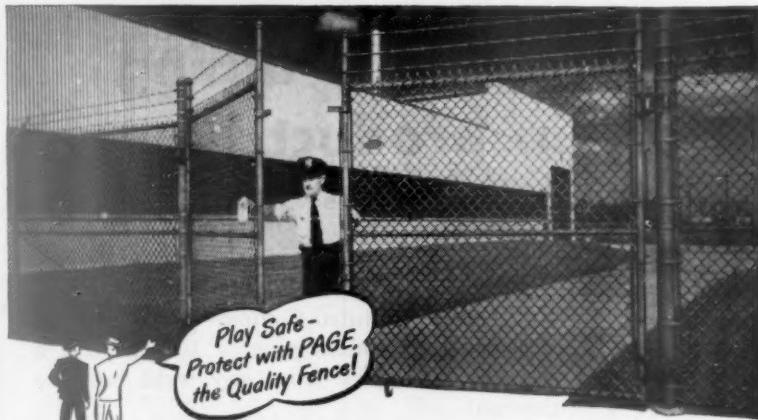


JENKINTOWN PENNSYLVANIA

For More Information Circle No. 404 on Inquiry Card—Page 17

PAGE FENCE

America's First Wire Fence—since 1883



Play Safe -
Protect with PAGE,
the Quality Fence!

• Security against the ever-present hazards that can damage or destroy property, or injure persons, is a responsibility to assign to PAGE Fence. Whether you choose heavily galvanized Copper-Bearing Steel, corrosion-resisting Aluminum, or long-lasting Stainless Steel, PAGE Fence is quality controlled from raw metal to rugged fence erected on metal posts deep-set in concrete. Available are 8 basic styles, varied by heights, types of gates, top rails, and barbed wire strands for added security. Finally, your PAGE Fence will be expertly erected by a reliable, technically trained firm. For important fence data and name of nearest PAGE firm—

Write to PAGE FENCE ASSOCIATION, Monessen, Pa., or look in Thomas' Register for listing of Page Chain Link Fence Distributors under "PAGE STEEL AND WIRE DIVISION," or see MacRae's Blue Book for listing under "FENCING, WIRE, LINE," or consult Sweet's Industrial Construction File.
PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

For More Information Circle No. 405 on Inquiry Card—Page 17

suppliers

Mueller Brass Co., Port Huron, Mich., has announced five sales appointments. George I. Duddy is district manager of the New Orleans sales territory; Vincent A. Bower is district manager for the Dallas sales area; E. L. Treppa becomes district manager for New England; Richard C. Haenke is now a sales representative at Detroit; and Milton W. Gkekas is a sales representative in Chicago.

The appointment of Ray W. Hermanson as sales manager has been announced by **The Wright Tool & Forge Co.**, Barberton, O.

A. F. Herold has joined the executive staff of **Union Chain and Mfg. Co.**, Sandusky, O.

Russell, Burdsall & Ward Bolt and Nut Co., Port Chester, N. Y., has named Russell E. Hoehl as assistant eastern sales manager, and Alfred A. Binkerd district sales manager of the Philadelphia territory.

Mueller Brass Co., Port Huron, Mich., has opened a new warehouse to serve the Philadelphia area.

Stewart E. Danby has been made a district representative for the Koehring Co., Milwaukee. He will cover the Dakotas, Nebraska, Iowa, Colorado, southern Wyoming, Minnesota, Kansas and western Missouri.

The Colorado Fuel and Iron Corp., New York, has moved its Philadelphia district warehouse and sales office to 225 West Erie Ave.

Thor Power Tool Co., Aurora, Ill., has announced two appointments. John P. Bank is now a sales engineer for the company, and Richard E. James, Jr., has been appointed manager of the new Indianapolis branch.

MORE OF THE GARLOCK

2,000

Will not **CRACK** or **HARDEN**
at high and low temperatures.

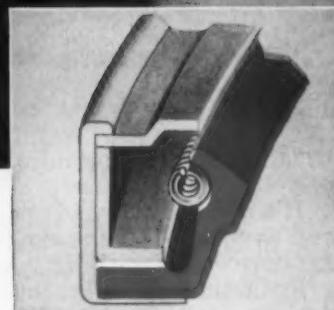
Garlock Silicone Rubber **KLOZURE*** Oil Seals

retain their original properties even after long exposure to temperature extremes that would quickly ruin organic rubber.

They are flexible and serviceable at temperatures as low as -90° F, and as high as 500° F... ideal for seals on automotive and aircraft products.

Extrusions and molded parts of Silicone Rubber are only part of "The Garlock 2,000"... two thousand different styles of packings, gaskets, and seals to meet all your needs.

It's the *only* complete line... that's why you get unbiased recommendations from your Garlock representative. Call him today or write for Oil Seal Catalog No. 10.



Klozure Oil Seal with Silicone Sealing Element for high speed, high temperature applications such as transmission cases, diesel engine crankshafts, and aircraft accessory gear cases. (Model 65 illustrated.)

THE GARLOCK PACKING COMPANY, Palmyra, New York

For Prompt Service, contact one of our 30 sales offices and warehouses throughout the U.S. and Canada.

GARLOCK



Packings, Gaskets, Oil Seals, Mechanical Seals,
Rubber Expansion Joints

*Registered Trademark

For More Information Circle No. 406 on Inquiry Card—Page 17

Utica's® New *Select-O-Lock** Wrench... more than 40 Open End Wrenches in 1



It's all done with
the MAGIC BUTTON

UTICA's new locking adjustable wrench will lighten the load of your tool kit.

It's not necessary to weigh yourself down with sets of open end wrenches to have the right size tool for a variety of jobs. SELECT-O-LOCK with its thin jaws, will fit them all.

Push the magic button and the wrench is locked at the desired position—like an open end wrench. Pull the magic button—it's a conventional adjustable wrench.

There's no more slipping and resetting to annoy you and waste time. SELECT-O-LOCKS are built for rugged use—the magic button will not accidentally push out and unlock the wrench.

SELECT-O-LOCKS, to be known as the 93 series, are available in 6, 8, 10, 12 inch size and are priced the same as the regular 91 series.

Order from your distributor today and lighten the tool load.

*PATENTED



UTICA DROP FORGE & TOOL CORPORATION
Utica 4, New York

A Subsidiary of Kelsey-Hayes Wheel Co., Detroit, Mich.
For More Information Circle No. 407 on Inquiry Card—Page 17

suppliers

The appointment of Ray D. Du-Vall as field sales manager has been announced by **Permit Paint Division, Aluminum Industries, Inc.**, Modesto, Calif.

Advance Transformer Co., Chicago, has named William M. Walsh sales representative for the midwestern region.



F. W. Hottenroth

Hupp Corp., Cleveland, has elected Fred W. Hottenroth to the newly created post of vice president in charge of technical sales.

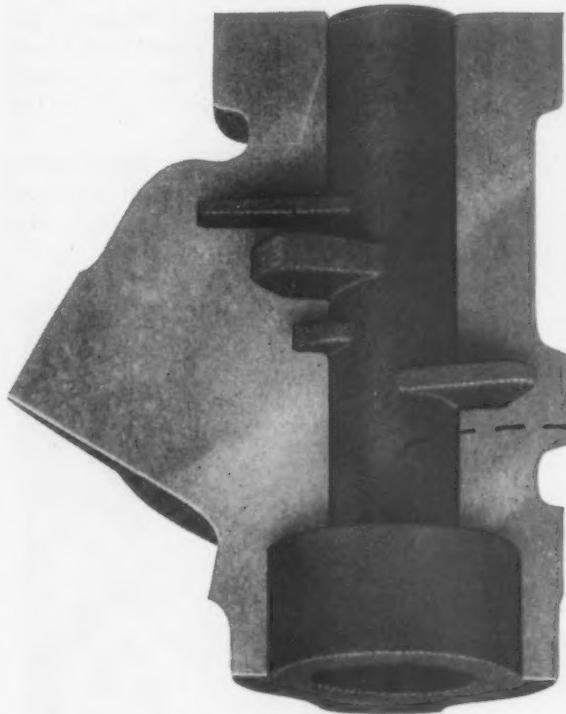
George Ullring has been named assistant sales manager of the **Allen Mfg. Co., Hartford, Conn.**

Inland Steel Co., Chicago, has appointed Derrick L. Brewster assistant general manager of sales.

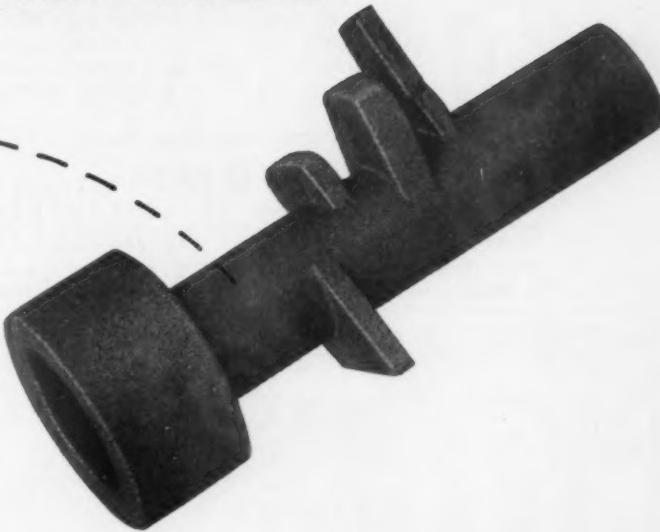
The Fiber Glass Division, Pittsburgh Plate Glass Co., has named Harry J. Paulus manager of battery products sales.

The Glidden Co., Cleveland, has appointed Charles R. Keefe manager of industrial paint sales in its southeastern division. His territory includes Georgia, Alabama, Florida, South Carolina, and parts of Mississippi and Tennessee.

NOW—all the advantages of **Permanent Molding—plus** **Intricate Shell Coring in**



**EATON
PERMANENT MOLD
GRAY IRON
CASTINGS**



PERMANENT MOLD GRAY IRON CASTINGS meet critical quality requirements, including intricately cored sections, in a wide range of applications. These castings permit higher machining feeds and speeds, with substantially increased tool life. Characteristics of these castings include dense, non-porous, homogeneous structure, freedom from inclusions, excellent tensile strength, and the ability to take high surface finishes.

These qualities particularly recommend Eaton Permanent Mold Gray Iron Castings for such uses as high pressure control mechanisms, refrigeration and air conditioning parts, power steering and power braking components, household appliance parts, pump bodies, hydraulic cylinders, and countless other critical applications.

If you have applications where more than ordinary quality is required, our engineers will be happy to work with you.

EATON

—FOUNDRY DIVISION—
MANUFACTURING COMPANY
VASSAR, MICHIGAN

For More Information Circle No. 408 on Inquiry Card—Page 17

Superb Performers

AURORA APCO
Turbine-Type



AURORA®
Centrifugal

for EVERY LIQUIDS HANDLING JOB in INDUSTRY

ASK
for

CONDENSED
CATALOG M-8



The engineer-favor accorded "PUMPS by Aurora" rests squarely upon performance satisfaction. Why not let Aurora precision and quality serve your requirements, too?

AURORA APCO Turbine-Type PUMPS
are available in SINGLE STAGE • TWO STAGE • FOUR STAGE • WATER JACKETED • STAINLESS STEEL or SPECIAL METALS for "1001" DUTIES.

AURORA Centrifugal PUMPS

are available in SINGLE and TWO STAGE HORIZONTALLY SPLIT CASE • SIDE SUCCTION • VERTICAL • NON CLOG • SUMP • MIXED FLOW • SPECIAL DESIGN ETC.

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA PUMP DIVISION
THE NEW YORK AIR BRAKE COMPANY

12 LOUCKS STREET • AURORA • ILLINOIS
INTERNATIONAL SALES OFFICE, 90 WEST ST., NEW YORK 8, N. Y.
For More Information Circle No. 409 on Inquiry Card—Page 17



BEFORE
You Buy
FENCE...

Get the Facts on
CONTINENTAL
The Only—
Chain Link Fence
made of KONIK STEEL



Konik is a special alloy steel that gives Continental Chain Link Fence increased rust resistance for longer life and lower upkeep costs. Its greater tensile strength (over 85,000 lbs. per sq. inch) withstands abusive shocks and stresses, extremes of temperature, without sagging or losing alignment. Bright-galvanizing after weaving and 13 other features mean extra protection and fine appearance. Complete engineering and construction service.

PLANNED PROTECTION

Send for FREE COPY
of PLANNED PROTECTION

Gentlemen: Please send us without obligation a copy of "Planned Protection."

Name _____

Firm _____

Address _____

City _____ State _____

CONTINENTAL
STEEL CORPORATION • KOKOMO, INDIANA

PRODUCERS OF: Manufacturer's Wire in many sizes, shapes, tempers, and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, and special wire. ALSO Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

For More Information Circle No. 410 on Inquiry Card—Page 17

suppliers

Brooks & Perkins, Inc., Detroit, has opened a new division on the west coast. It is the West Coast Engineering Division at 11655 Vanowen St., N. Hollywood, Calif.

Industrial Plastic Fabricators, Inc., Norwood, Mass., has named James P. O'Connor, Jr., sales manager.



L. E. Flanders, Jr.

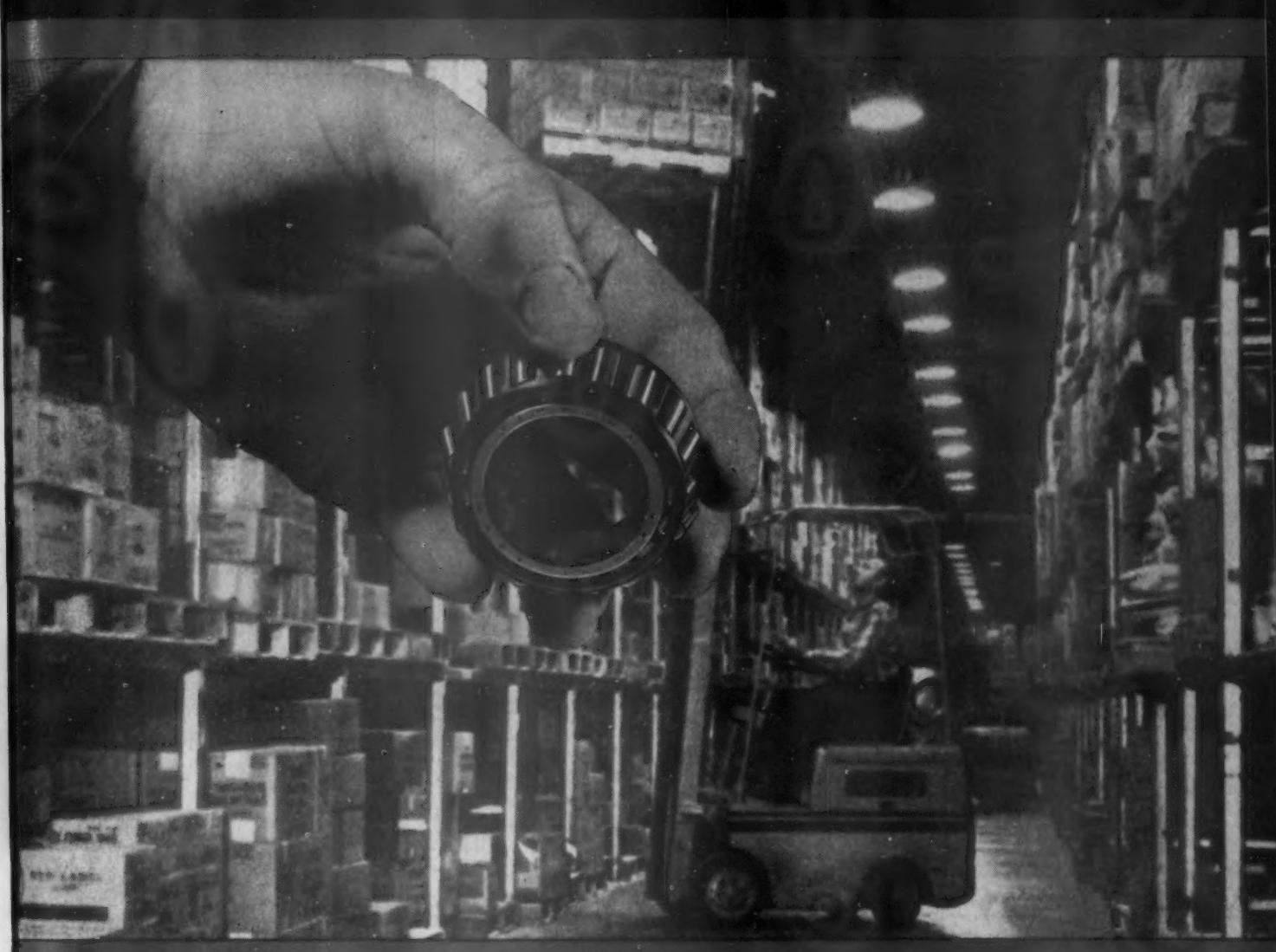
Lloyd E. Flanders, Jr., is now general sales manager of Rust-Sel Co., Cleveland.

Robert B. Allen has been named sales manager of the newly formed Signal Division of The Gamewell Co., Newton Upper Falls, Mass. Also, Charles J. Manning has been made sales manager of the Precision Potentiometer Division.

The Nylok Corp., New York, has announced major additions to its group of licensees. They are: Buffalo Bolt Co., N. Tonawanda, N. Y.; Federal Screw Works, Detroit; and Standard Pressed Steel Co., Jenkintown, Pa., and its two subsidiaries, Cleveland Cap Screw Co., Cleveland, and Cooper Precision Products, Los Angeles.

The Cleveland Graphite Bronze Co., has named William Mogg as special products sales manager.

*Meeting the big change in industry with the big change in bearings—**TIMKEN** and the Moto-Mated Way.*



New **TIMKEN®** Moto-Mated bearings offer an almost unlimited source of supply

AMERICA'S industrial expansion is booming. And at the heart of it you'll find machines—a whole new breed of them. Lift trucks and conveyors. Automobiles and drill presses. Machines that place greater demands than ever on component parts.

The Moto-Mated Way meets these demands with a new breed of bearings. Launched in a revolutionary new mass production factory, the Moto-Mated Way is a whole new concept in bearing design, manufacture and supply—and it's *mated* to industry's needs. The Moto-Mated Way reinforces our long partnership with the industries we serve by anticipating requirements. Giving an almost un-

limited source of supply. Bringing more uniformly precise bearings at lower cost.

The Moto-Mated Way is producing bearings by the millions with the most advanced machines and methods. Smaller bearings to permit more compact design. Lighter bearings to cut weight—improve ride. Lower-priced bearings to offset rising costs. Bearings that pack maximum capacity in minimum space.

The auto industry has saved 11.3% or more in bearing costs in millions of front wheels by adopting new Timken® Moto-Mated bearings. They're available now in bore sizes of $\frac{3}{4}$ ", $\frac{27}{32}$ ", $1\frac{1}{4}$ " and $1\frac{1}{8}$ ". By rede-

signing present applications for new Timken Moto-Mated bearings, you too can save up to 11.3%.

Quality, service, public acceptance and the new low price make Timken Moto-Mated bearings your No. 1 value. There's no reason to substitute. Our representatives will be glad to tell you more about the Moto-Mated Way. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

YOUR No. 1 BEARING VALUE

TIMKEN
**TAPERED
ROLLER
BEARINGS**

CAM-ALLOY STEEL
HIGH TEST STEEL
WROUGHT IRON



**Come To CAMPBELL
For The Complete Line
of SLING CHAINS**

every type — every size
every grade — every attachment

Whatever your particular application, Campbell will deliver exactly the right assembly! All Campbell Sling Chains are available in 3 grades—Cam-Alloy Steel, High Test Steel and Wrought Iron.

**GUARANTEED
FOR A FULL YEAR!**

Send today for your free copy of
Campbell's new Sling Chain Handbook

It contains complete details on all Campbell Sling Chain equipment—together with lots of valuable information on care and use. And you'll find step-by-step instructions for ordering each type of sling chain and attachment—illustrations—specifications and working load limits for all grades.



Main Office, York, Pa. • West Burlington, Iowa
Portland, Oregon • Sacramento, California
Makers of Famous CAMPBELL Lug-Reinforced TIRE CHAINS

For More Information Circle No. 412 on Inquiry Card—Page 17

suppliers

Martin J. Connolly, Jr., has been named assistant sales manager of headquarters sales of the Bound Brook Oil-Less Bearing Co., Bound Brook, N. J.

A. F. Dobbrodt is now Pacific northwest sales representative for Metallurgical Products Department, General Electric Co., Detroit.



D. R. Lynch

The Cleveland Cartage Co., Cleveland, has named Dan R. Lynch sales manager.

U. R. Jaeger has been named sales manager for Roll-Bond products in the Western Brass Division, Olin Mathieson Chemical Corp., New York.

The Bristol Co., Waterbury, Conn., has made S. E. Gewin district manager of the company's Chicago office.

Kuhlman Electric Co., Bay City, Mich., has made Joel H. Watkins vice president in charge of sales.

David H. Kollock is now general sales manager of Airdesign, Inc., Upper Darby, Pa.

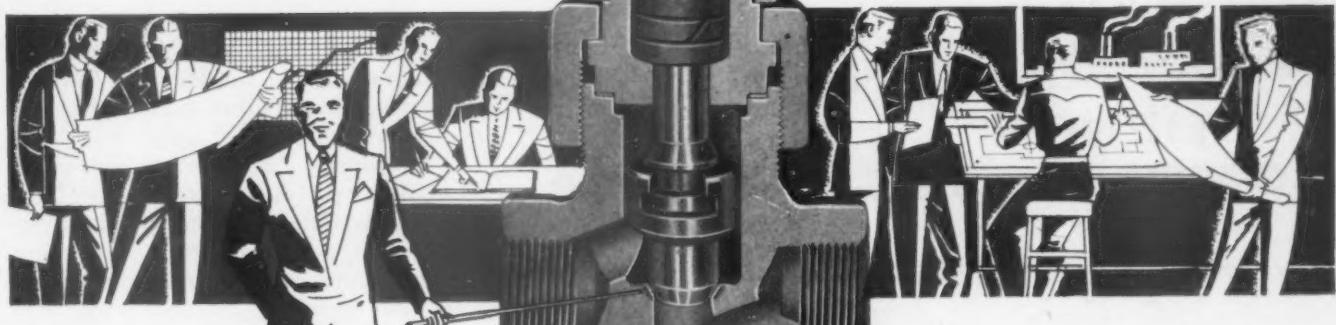
For More Information Circle No. 391
on Inquiry Card—Page 17→

Hard faced

WITH STELLITE

to resist
seat wear

...at no
extra cost!



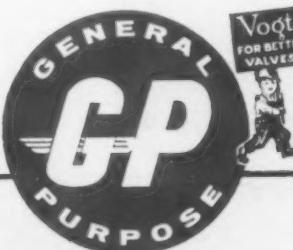
GP Globe Valve-Series 800

Stubborn resistance to valve seat wear, due to erosion, corrosion and galling, is built into Vogt GP valves with Stellite faced seating surfaces used in conjunction with hardened discs and wedges. By an exclusive method, hard facing alloys are welded to the integral seat of globe and angle valve bodies and to the removable stainless steel seat rings of gate valves.

This important feature, available at no extra cost, assures operation economies and longer valve life. A catalog describing the complete General Purpose line of valves in sizes $\frac{1}{4}$ " to 2" will be sent on request.

Adv. No. 3 in a series describing the features of Vogt GP valves.

Vogt



Write For Your FREE COPY of Supplement
No. 1 to Catalog F-9. Address Dept. 24-FPM

HENRY VOGT MACHINE CO.
P. O. Box 1918 • Louisville 1, Kentucky

SALES OFFICES:

New York, Philadelphia, Cleveland, Chicago, St. Louis,
Charleston, W. Va., Cincinnati, Dallas, San Francisco

DROP FORGED STEEL

VALVES

For More Information Circle No. 413 on Inquiry Card—Page 17



If

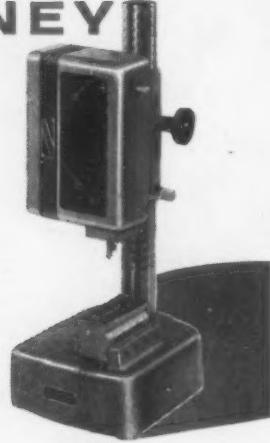
**PRODUCT PRECISION
and QUALITY are
WEIGHTY PROBLEMS**

... rely on
THESE SCALES

PRATT & WHITNEY BENCH COMPARATORS

P & W SIGMATIC COMPARATORS

Inexpensive high precision. Require no outside power source. Combine the simplicity of mechanical operation with high magnification (to 5000X). Easily portable. For external gaging applications.



P & W AIR-O-LIMIT COMPARATORS

Extremely versatile — use a large variety of gaging internal and external attachments to check a wide range of products. Readily engineered to meet your special requirements.



P & W ELECTROLIMIT COMPARATORS

Wherever the ultimate in gaging accuracy is required. Combine mechanical gaging with electrical magnification for easy reading of errors in "tenths" or "hundredths." Magnifications to 110,000X.



WRITE NOW FOR DESCRIPTIVE PRODUCT CIRCULARS . . .
outlining your Quality Control Requirements.



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INCORPORATED**

19 Charter Oak Boulevard, West Hartford 1, Connecticut

Branch Offices and Stocks in Principal Cities

MACHINE TOOLS • GAGES • CUTTING TOOLS

office equipment

(Continued from page 170)



The Hermes Division, Paillard Products, Inc., New York, has announced that the Hermes Ambassador line of office typewriters has been completely restyled, mechanically improved, and dressed in a new pastel green case. The machine now has improved typing action, a four position ribbon for economy, and a centrifugal tabulator break.

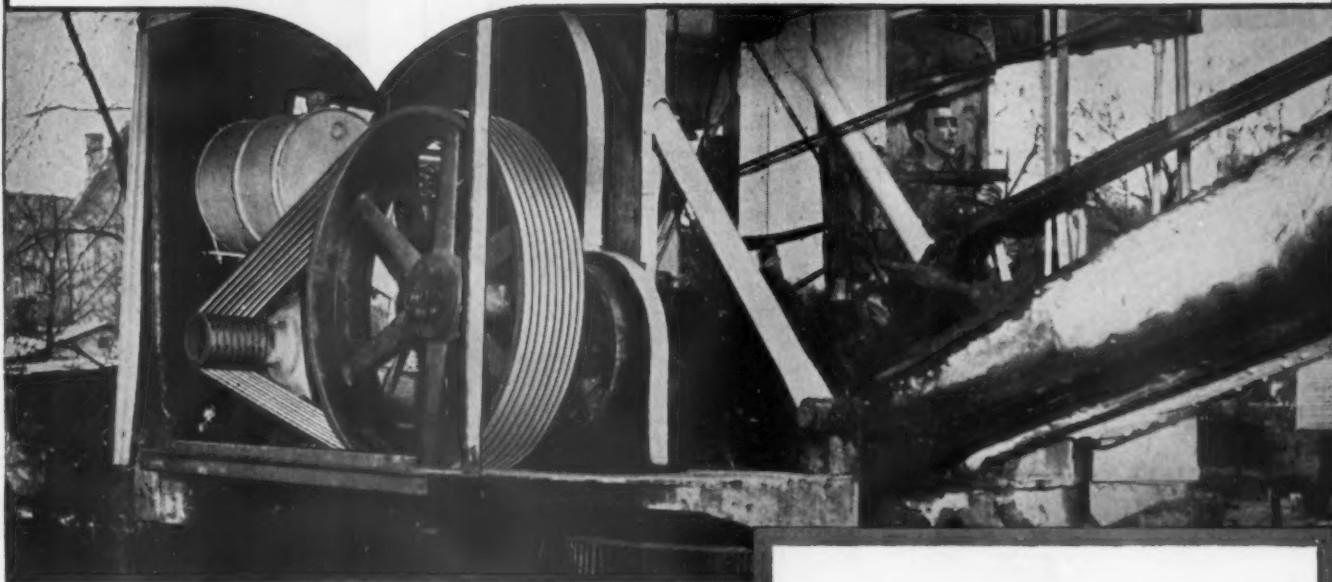
Circle No. 120 on Inquiry Card—Page 17



A new electric register that provides push-button control of forms handling operations has been announced by Moore Business Forms, Inc., Niagara Falls, N. Y. The register automatically ejects forms after writing, by the touch of a button, and will handle all sizes of continuous register forms, including the popular 4" x 6", 5½" x 8½", 6½" x 8½" and 8½" x 8½". Forms sets up to six parts can be used in the machine. Circle No. 121 on Inquiry Card—Page 17

For More Information Circle No. 414
on Inquiry Card—Page 17

These super-tough V-belts saved construction firm \$1,600 first year



How Gates Super Vulco Rope solves tough drive problems

Wherever . . . whenever . . . you have a tough drive problem—the problem of handling shock loads, of overcoming heat and weather, or of limited space—have one of our belt specialists show you how the problem can be solved with a Gates Super Vulco Rope Drive.

For example: Bise & Shortt, General Contractors, of Clintwood, Virginia, had a chain drive on their one-yard power shovel shown above.

After six months of use, the worn chain would whip under load, causing both chain and sprocket to wear out still more rapidly. New chain had to be installed every year.

Then Ayers Shortt called in a Gates engineer to solve the problem. With space limited and severe shock loads a factor, the Gates man recommended a Gates Super Vulco Rope Drive for lowest initial cost and continuing economy. "The shovel runs like new," says Mr. Shortt, "and every year the Gates drive is saving us the \$1,600 it cost in parts and lost time to replace the chain drive."

Gates offices and distributors are listed in phone book yellow pages in all major industrial centers. The Gates Rubber Company, Denver, Colorado—*World's Largest Maker of V-Belts*.

The Mark of  Specialized Research

No Other V-Belt has ALL these Advantages

1. Tough, resilient Tensile Cords

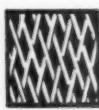


Super-strength tensile cords provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . . reduce number of belts required . . . save weight and space.



2. Concave Sidewalls (US Pat. 1813698)

Concave sides (Fig. 1) increase belt life. As belt bends, concave sidewalls become straight, making uniform contact with sheave groove (Fig. 1-A). Uniform contact means less wear on sides of belt . . . far longer belt life.



3. Flex-Weave Cover (U.S. Pat. 2519590)

Provides greater flexibility with far less stress on fabric. Cover wears longer . . . increases belt life . . . more power available to driven machine.

4. High Electrical Conductivity

Built into Gates Super Vulco Ropes for safer drives (in explosive atmospheres).

5. Oil, Heat, Weather Resistant

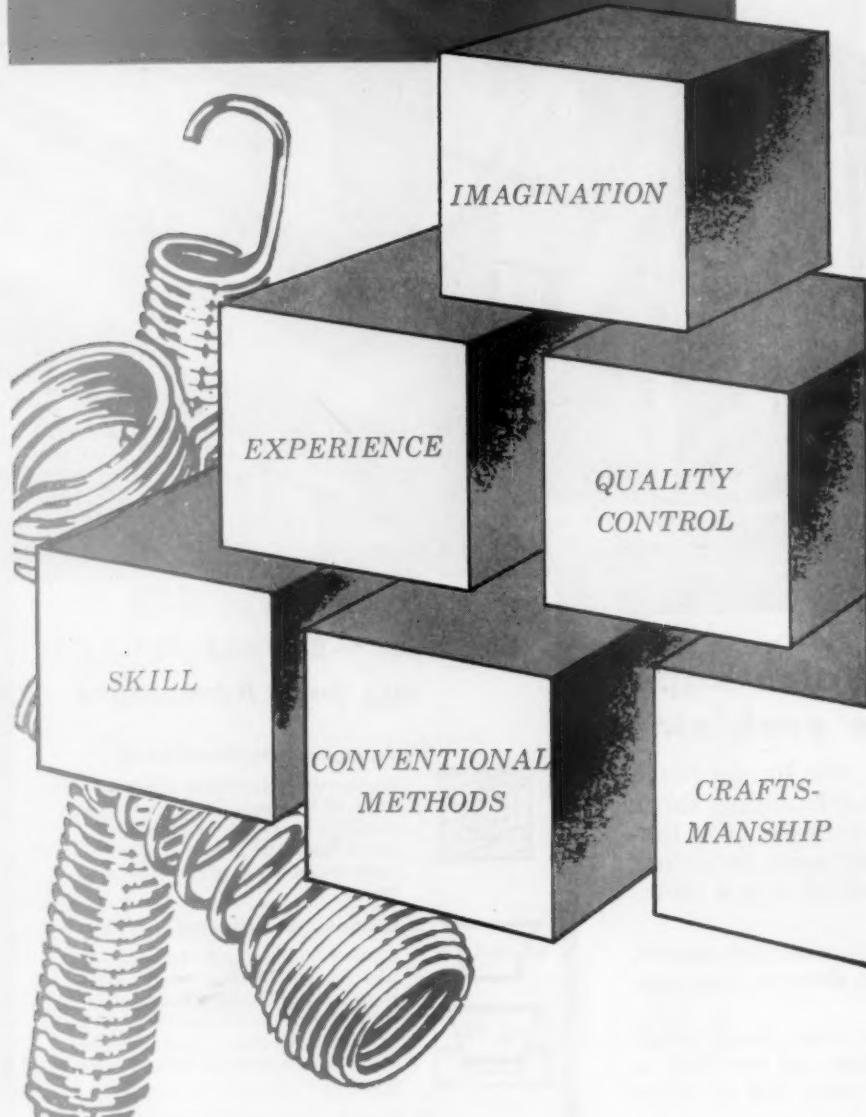
Special rubber compounds make Super Vulco Ropes highly resistant to heat, oil, and prolonged exposure.

TPA 117

Gates SUPER VULCO ROPE Drives

For More Information Circle No. 415 on Inquiry Card—Page 17

BUILDING BLOCKS for Accurate Springs



Conventional, accepted standards of manufacturing springs are a building block at Accurate Springs. So are skill, craftsmanship, experience, quality control—and *imagination!* It all adds up to a better spring, at lower cost, held to closer tolerances—for *YOU*.



ACCURATE SPRING MFG. CO.

3825 West Lake Street
Chicago 24, Illinois

SPRINGS • WIREFORMS • STAMPINGS

For More Information Circle No. 416 on Inquiry Card—Page 17

350

office
equipment



The new Bates "56" stapler is now color-keyed, according to Bates Mfg. Co., Orange, N. J. It has a knob molded of plastic in yellow, red, or blue. The metal base is painted in mottled colors, which gives a textured effect. In operation, the stapler can be set for either permanent or temporary fastening.

Circle No. 122 on Inquiry Card—Page 17



Thomas A. Edison, Inc., West Orange, N. J., is introducing a dictation transcription model that closely resembles the executive type dictating machine. Part of the Voicewriter series, it is called the Voicewriter Secretarial. Its sound system emphasizes hard-to-hear sounds and softens harsh words so that recorded dictation becomes as clear as conversation. A finger or foot control operates the machine. It has an illuminated index panel to provide an exceptionally clear and precise place-finding system. As an additional aid, length of message appears as a white light, and correction marks show up as red. The index slip is also magnified for easier scanning.

Circle No. 123 on Inquiry Card—Page 17
PURCHASING



Schrader 3-WAY PILOT VALVES, which respond to the out-of-phase cam-operated valves, automatically actuate unscrambling actions on conveyor. Some other Schrader Air Products involved in this operation are indicated in red (Numbers 1 through 5).

How Schrader Air Products automatically *unscramble paraffin blocks—unwatched!*

Arranging bars of hardened paraffin from a disorganized pile to orderly groups of five, ready for packaging, is a cinch at one New York plant. Schrader Air Products do the job fast and accurately, unattended. Air-activated "fingers" of metal do the trick, as fast as the bars descend the incline.

Every day, new ways are discovered for performing operations automatically with Schrader Air Products. Schrader's line of industrial products includes hundreds of units which can be arranged in limitless combinations for thousands of

different jobs. And air always brings to any job its basic economy, safety and efficiency.

Do you know the Schrader story in relation to your plant's needs? Learn it now, by asking for Schrader engineering assistance in planning for most efficient use of air in your plant. Outline your problems for us and we can help you select the products best suited to your applications. Or, send for the latest informative booklets which show Schrader Air Products that will help you increase production—economically.

Schrader®

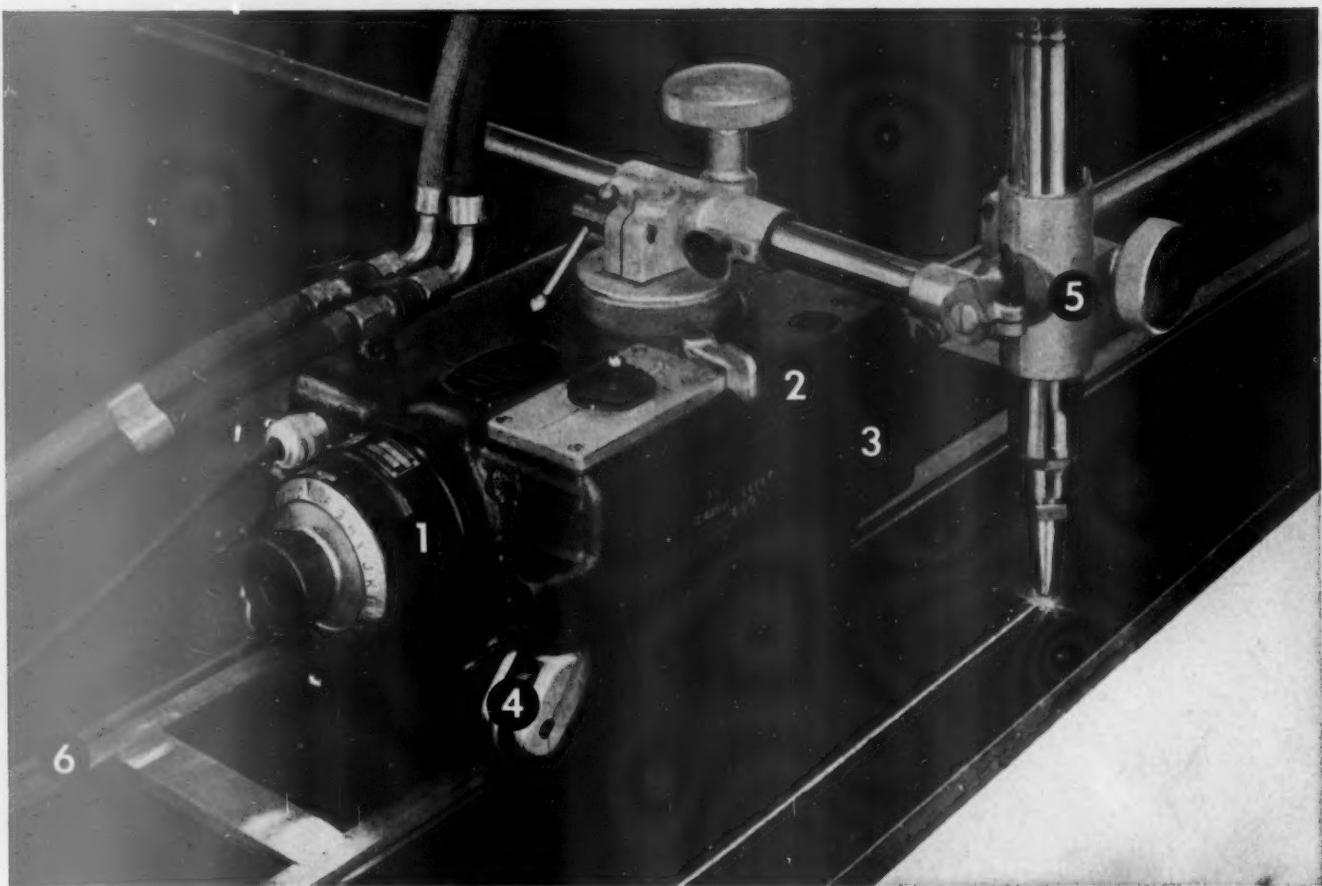
ESTABLISHED IN 1844

A. SCHRADER'S SON
Division of Scovill Manufacturing Company, Incorporated
473 Vanderbilt Avenue, Brooklyn 38, N. Y.

FIRST NAME IN THE USE OF AIR
FOR INDUSTRIAL PRODUCTION AND CONTROL



For More Information Circle No. 417 on Inquiry Card—Page 17



Quality in Details! these factors make the Airco #10 Radiagraph your best buy

The #10 Radiograph is a portable (43 lb.) gas cutting machine designed to cut metals up to 6" thickness. It will cut straight lines of any length, circles from 3" to 85" diameter, arcs up to a radius of 42½" — all with square or beveled edges. Designed to provide the greatest degree of cutting accuracy and convenience of operation, the husky overall construction of the #10 has made it an indispensable tool wherever steel is to be cut to size for fabrication. Here are a few of the *quality details* that don't meet the eye:

1. Governor Control Variable Speed Motor puts the entire speed range (4 to 50 ipm) at operator's fingertips. An indicator showing all speed settings is provided. Speed can be increased or decreased while cutting is in progress... speed is not affected by load or voltage changes.

2. Clutch Lever allows the machine to be rolled freely in either direction. This feature is a time-saver when aligning the machine with work.

3. Drive Shaft (under housing) runs on replaceable needle bearings which reduce friction to a minimum and affords a maximum of free motion.

4. Caster Wheels run in a machined groove in track for greater machine stability and more accurate cutting.

5. Torch Holder Assembly is made of brass forgings which withstand more abuse than castings and have greater corrosion resistance than iron or steel.

6. Track is cold rolled steel with two machined grooves in which wheels travel, and has track sections with tongue and grooved joints for correct alignment when multiple lengths are used for progressive cutting.

Airco oxyacetylene shape cutting machines include the Airco Camograph, Monograph, Duograph, Oxygraph and Travograph. Write today for literature.

welding

AT THE FRONTIERS OF PROGRESS YOU'LL FIND . . .



Offices and dealers in
most principal cities

AIR REDUCTION SALES COMPANY

A division of Air Reduction Company, Incorporated, New York 17, N.Y.

On the west coast —
Air Reduction Pacific Company

Internationally —
Airco Company International

In Cuba —
Cuban Air Products Corporation

In Canada —
Air Reduction Canada Limited

Products of the divisions of Air Reduction Company, Incorporated, include: AIRCO — industrial gases, welding and cutting equipment, and acetylenic chemicals • PURECO — carbon dioxide, liquid-solid ("DRY-ICE") • OHIO — medical gases and hospital equipment • NATIONAL CARBIDE — pipeline acetylene and calcium carbide • COLTON — polyvinyl acetates, alcohols, and other synthetic resins.

For More Information Circle No. 418 on Inquiry Card—Page 17

Announcing!

"GRADE MARK SERVICE"

a new time-and-money-saving "extra"
to users of COLD FINISHED BARS



● "GRADE MARK SERVICE" gives you quick, accurate identification.

● With strapping seal showing grade of each bundle, you save time and trouble in identifying and handling each grade. This is "Grade Mark Service." No need to separate and sort out bars—they are bundled according to grade.

● Another reason why U. S. STEEL SUPPLY is where to buy!

To simplify the identification and handling of cold finished bars . . . to make it much easier for your receiving department to properly stock incoming shipments, we have an entirely new method of bundling and marking the bars you order.

Beginning now, the cold finished bars in your order will be shipped to

you in neatly strapped bundles, and each bundle will carry a seal which clearly shows the grade of the bars in that particular bundle. Thus, without altering your stocking procedure in any way, you save time and trouble in identifying and handling each grade. This is "Grade Mark Service."

This new and improved method of bundling and marking shipments of cold finished bars is another reason why it pays to buy from U. S. STEEL SUPPLY. One call is all that's needed to get the bars you want. Your order will be filled and shipments made from the warehouse nearest the point of delivery.

U. S. STEEL SUPPLY

DIVISION



General Offices: 208 So. La Salle St., Chicago 4, Ill.

Warehouses and Sales Offices Coast to Coast

UNITED STATES STEEL

For More Information Circle No. 419 on Inquiry Card—Page 17



WHAT'S WRONG?

The spring buyer did not nail down the specifications. Spring suppliers are interpreting the specs differently.

Supplier A, quoting \$62.15, noted that several specified tolerances were beyond machine capabilities and could only be obtained by using special, costly methods. Believing that the spring was "over specified," he quoted to "common sense" tolerances, not to the questionable tolerances specified.

Supplier B, quoting \$74.30, noted the too-tight tolerances and also recognized that, in packaging, tangling would present a costly assembly problem. Without taking explicit exception, he decided to quote to more realistic tolerances and also decided to include the cost of special packaging.

Supplier C, quoting \$139.40, quoted exactly to specs, figured on using special methods and specialized inspection to meet specs, and special packaging to avoid tangling. He offered several engineering suggestions for cost reduction which, if accepted, would have made him competitive with Supplier B.

Which is the best bid? This depends on whether or not the tolerances specified were necessary and complete.

When purchasing springs, here are some good rules to follow: (1) specify tolerances realistically; (2) include all pertinent information; (3) insist on conformance to specifications (a supplier's Quality Report is a good way to check this); and encourage your spring supplier to offer suggested changes to the specs in the interests of economy. By doing so, quotations like these and "quality headaches" can be avoided.

Write for information on spring buying.

HUNTER SPRING COMPANY

15 Spring Avenue, Lansdale, Pennsylvania
(near Philadelphia)

SPRINGS • STAMPINGS • TEST APPARATUS

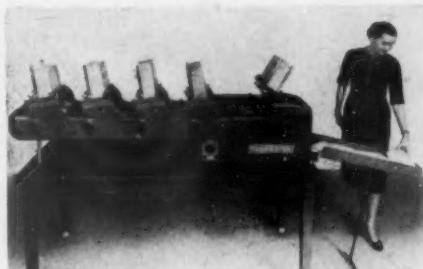
For More Information Circle No. 420 on Inquiry Card—Page 17

HUNTER

office equipment

The Colitho Division, Columbia Ribbon & Carbon Mfg. Co., Inc., Glen Cove, N. Y., has added a low cost, sensitized acetate plate to its line of offset duplicating supplies. The Colitho #6000 Sensitized Negative Acetate Plate is recommended for superior line work. Quality halftone work can also be done on shorter runs. Developer for the plate is sold in powder form in sufficient quantity to develop 50 plates. Exposed, undeveloped plates may be stored in a light-proof envelope or box for several days without fear of image loss. It comes in all popular duplicating sizes and punchings.

Circle No. 124 on Inquiry Card—Page 17

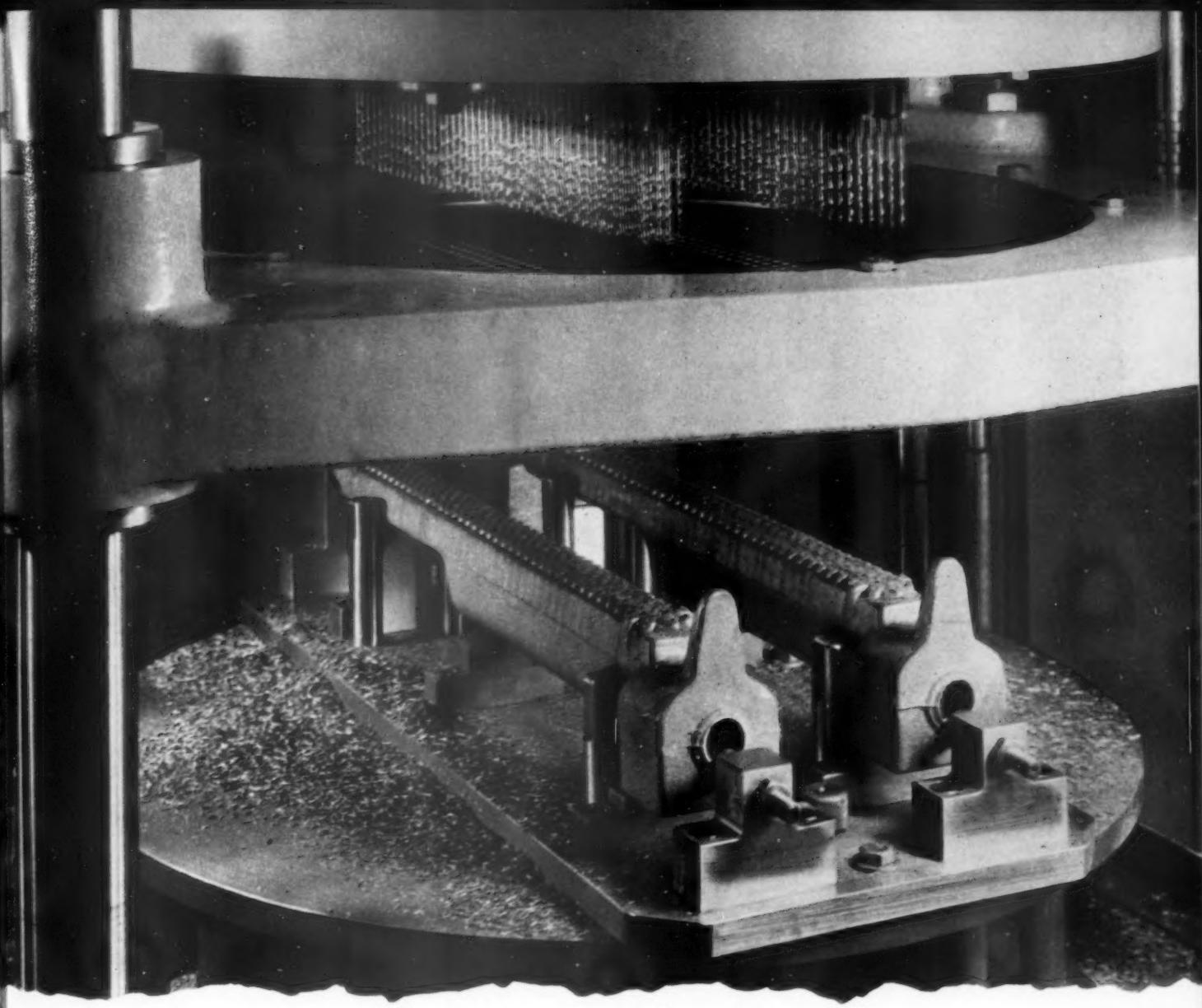


A new inserting and sealing machine has been announced by Cummington Corp., Boston. The machine reduces mailing costs by gathering and inserting enclosures, sealing, counting and stacking envelopes automatically. The Cummington Mail Inserter is available in one, two, three, or four station models. It is a high speed machine capable of handling more than 30,000 stuffed and sealed envelopes in a wide variety of sizes (6-3/4" to 11") per day. A positive vacuum feed, with micro-calibration, assures accuracy by preventing misses and double inserts. An automatic, electronic control prevents jamming. The machine is a self-contained unit operating on 110v, 60 cycles.

Circle No. 125 on Inquiry Card—Page 17

For More Information Circle No. 421 on Inquiry Card—Page 17→

PURCHASING



COSTLY "DOWN TIME" REDUCED!

Uniform quality

and high performance of
CLE-FORGE High Speed Drills
can help you reach
production quotas

• You can keep your drilling operations *on schedule* with CLE-FORGE High Speed Drills. These fine quality tools give superior performance on *every set-up* . . . and you can rely on their *uniformity* day after day, month after month, year after year.

◊ Why not ask a Cleveland Service Representative for suggestions on reducing "down time" and increasing production in *your* shop? Contact our nearest stockroom, or . . .

TELEPHONE YOUR INDUSTRIAL SUPPLY DISTRIBUTOR



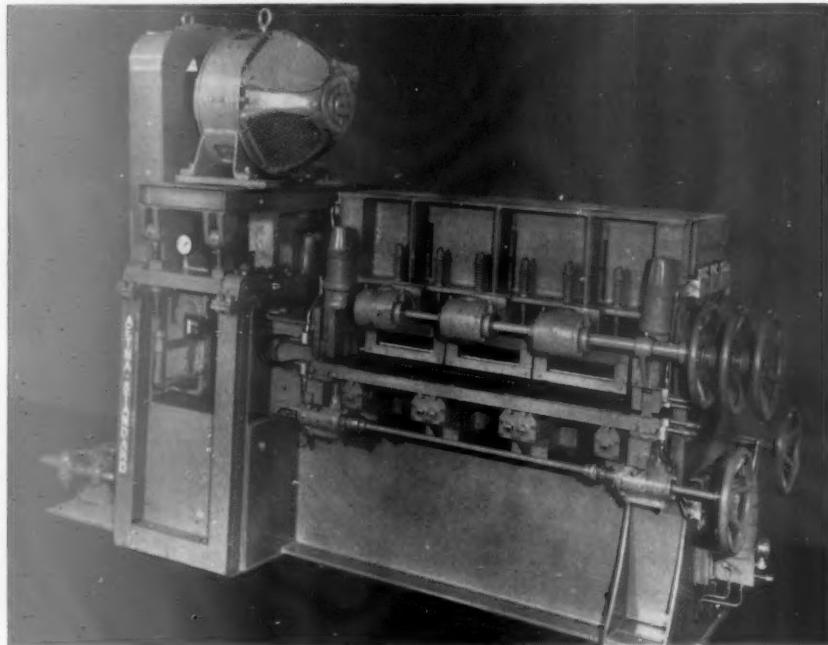
THE CLEVELAND TWIST DRILL CO.

1242 East 49th Street • Cleveland 14, Ohio

Stockrooms: New York 7 • Detroit 2 • Chicago 6 • Dallas 2 • San Francisco 5 • Los Angeles 58

E. P. Barrus, Ltd., London W. 3, England

BEARING TIPS by McGill



138 GUIDEROL® BEARINGS BACK UP WORK ROLLS IN AETNA STANDARD LEVELER

High load capacity vital to back-up roll support

For processing 16 to 30 gauge steel sheets and coils, this Roller Leveler built by Aetna Standard Engineering Company requires dependable components to deliver a consistent maximum output at speeds up to 400 feet a minute.

McGILL GUIDEROL GR-16 bearings were selected for this machine and several larger versions use GR-24 and GR-36 bearings. They can carry the heavy irregular loads associated with flattening and leveling steel sheets and strips. Requiring less radial space, Guiderol bearings provide maximum roll neck diameters and offer greater strength at the necks of larger back-up rollers.

On the machine shown above, there is a total of 36 back-up rollers in 3 upper banks and 33 in 3 lower banks to resist the heavy pressure of the 48 inch working rolls. With a GUIDEROL bearing at each end of the $1\frac{1}{4}$ " back-up rolls, a total of 138 bearings is required for the Leveler. These bearings have proved especially suited to supporting heavy loads longer in small radial space with reduced maintenance and production down time — important in steel mill operations.



American Hoist Uses CT Series In Crane Blocks

Crane Blocks built by American Hoist and Derrick to withstand the greater strains and rough usage of lifts up to 500 tons rely on the greater capacity of GUIDEROL CT Series bearings in the sheaves. Interchangeable with retainer type cylindrical roller bearings, the CT Series full type roller construction has added capacity of over 38%. In sheaves these bearings offer greater angular stability with full race width rollers. Center guiding without retainer keeps these rollers aligned and prevents binding under eccentric loads.

Insure performance with **McGILL®**

MULTIROL® GUIDEROL® CAMROL®
Full Type Roller Bearings

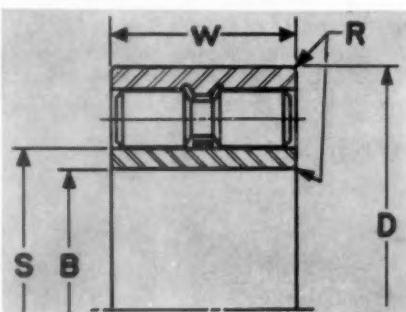
McGILL MANUFACTURING COMPANY, INC., 400 N. LAFAYETTE ST., VALPARAISO, INDIANA

For More Information Circle No. 422 on Inquiry Card—Page 17

Center-Guided Rollers Eliminate Load Wasting Cages



Guiderol Bearings inherently possess exceptionally high radial load capacity due to their full complement of small diameter rollers. Grooved rollers and a center guide rail keep rollers aligned as insurance against skewing and binding that is possible with ordinary needle bearings. Sizes interchangeable with needle and cylindrical roller bearings.



CT Series Adds Guided Roller Advantages to Cylindrical Roller and Ball Bearing Sizes

CT Series Guiderol Bearings provide the load carrying advantages of center guided rollers in cylindrical roller and ball bearing sizes. They are interchangeable in both single and double row dimensions. Inner rings are separable and may be eliminated to reduce radial space.

140 Pages of Bearing Facts

Write for your copy of Catalog No. 52, a revised 140-page Bearing Selection Guide. It contains vital product information and 30 pages of engineering data.



Announcing—
the new
SYLVANIA VHO-25
Fluorescent Lamp

SYLVANIA
100W COOL WHITE
V.H.O.-25
MADE IN U.S.A.



Sylvania's VHO lamp makes possible more light per foot from fluorescent lamps

Produces more than twice the light output of conventional 40 watt lamps!

**Sylvania Research conquers Heat and Pressure—
two major obstacles to more light per foot!**



The VHO-lamp represents an entirely new concept in lamp design—an entirely new way to get more light per foot from fluorescent lamps.

To make this achievement possible Sylvania engineers have developed and combined these vital features:

1. New "Pressure Control" Center. The specially developed, exclusive internal end construction of the VHO lamp creates "cool spots" at each end which allow mercury to condense.
2. Neon gas replaces Argon. Sylvania discovered that Neon actually gives far greater efficiency at higher wattages than the conventional Argon.
3. Use of standard T-12 bulb. The popular T-12 bulb permits maximum effective production and use of ultra-violet radiation within the tube.
4. The Patented Sylvania Rapid Start System. This development for fluorescent lamps keeps filaments warm during operation of lamp, and encourages effective electronic emission from filaments at all times.

IN APPEARANCE, the VHO-25 is a standard 4-foot T-12 lamp, yet it produces *more than double* the light output of 40-watt fluorescent lamps made until now.

Due to the substantially greater light output of the Sylvania VHO, High-Bay Industrial Fluorescent lighting becomes practical and economical. In Low Bay lighting, VHO lamps will, in many cases, prove more economical because fewer fixtures are required.

VHO lamps are also a new and practical answer to better, highly efficient street lighting . . . use a minimum of lighting units of less cumbersome size. They are also particularly suitable for other outdoor lighting applications such as store fronts, service stations, and floodlighting of outdoor industrial or commercial areas.

If you are considering plans which include lighting for new construction or modernization, the new Sylvania VHO fluorescent lamp will be of particular interest to you. For complete details consult your local Sylvania Representative, or send today for your free folder about the revolutionary Sylvania VHO Rapid Start Fluorescent Lamp. Write to:

SYLVANIA ELECTRIC PRODUCTS INC.
Lighting Division, Dept. I, Salem, Mass.
In Canada: Sylvania Electric Products (Canada) Ltd.
Shell Tower Building, Montreal

SYLVANIA

...fastest growing name in sight

LIGHTING • RADIO • TELEVISION • ELECTRONICS • ATOMIC ENERGY

For More Information Circle No. 423 on Inquiry Card—Page 17

OCTOBER, 1956

357

Sam Made The PANTS TOO LONG



PRESIDENT, THE CINCINNATI GEAR CO.

Some time ago I had a friend who decided (as I guess everyone has at some time) that the best way to get a good suit would be to buy some cloth that he particularly liked and then have the suit "made to measure" by a tailor. The purchase of the cloth presented no problem, but the selection of a tailor was another matter. He finally chose a small, inconspicuous one-man shop someone suggested to him; the poor fellow who ran it looked half starved, so he assumed he was about to get a real bargain.

After a reasonable wait, he got the suit; but it was a *terrible* fit. He went back for "alterations." It still fit poorly, but he didn't have the heart to go back again to the old man and tell him the truth—that his suit was no good. So, he gave the suit to his yard man.

The moral of this is clear—unless you're a gambler by nature, take your business to a shop that is big enough to do the job right in the first place, or to *make good* if it turns out wrong. This moral holds true whether you're buying suits or custom gears. Our reputation of nearly 50 years of virtually invariable customer satisfaction shows that we are equipped to do the job right—and if, by some chance, there is something wrong, we correct it to your complete satisfaction—almost quicker than you can say "Sam, you made the pants too long!"

THE CINCINNATI GEAR CO.

CINCINNATI 27, OHIO

"Gears—Good Gears Only"



For More Information Circle No. 424
on Inquiry Card—Page 17

office
equipment



Shaw-Walker Co., Muskegon, Mich., has announced a new **executive desk** with Work-Organizer drawer interiors to eliminate fumbling and searching. Known as the Carlyle Executive Desk, it always provides a clear top for current projects. The telephone is in a drawer as are letter trays, waste basket and forms and pads. The center drawer is replaced by utility drawers, partitioned to provide specific space for work, working tools and personal items. Wood and cork interiors provide warmth and eliminate clatter. Both utility drawers convert into glass covered reference shelves by turning a knob. For the convenience of left-handed people, interiors are reversible. The desk comes in five models, three having overhanging tops. Pictured is Fan Top Desk No. 8060-10, which is 81-1/2" wide, 43" deep, and 29" high.

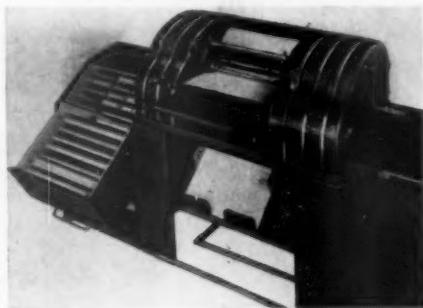
Circle No. 126 on Inquiry Card—Page 17



Office machine combinations are now being marketed by **Friden Calculating Machine Co., Inc.**, San Leandro, Calif. Considerable savings are possible through a combination such as the Friden

Commercial Controls Corp. Flexowriter and the Friden Model C Computyper. A Flexowriter in a purchasing office can produce a purchase order containing a variety of information, also producing a punched paper tape at the same time. Fed into the Friden Model C Computyper, the coded tape will automatically reproduce the entire record for cost accounting and accounts payable, punching a second tape with quantity and price automatically extended, special charges added, percentage discounts figured and subtracted, taxes and shipping charges added, sub and grand totals given, all without error. The tape can also be fed into tape-to-card converters for easy filing in tab machine inventory records. Also, pre-prepared, coded tapes can be fed into the Flexowriter to prepare purchase orders automatically, stopping only when new data must be entered.

Circle No. 127 on Inquiry Card—Page 17



The Ormig Super Universal selective data printer is being marketed by **Copy-Craft, Inc.**, New York. The machine features line selection, column shifting and line posting. From one written original, the Super Universal offers a wide variety of selected information at one pass through the machine, including; choice of five different headings, either one or two lines of intermediate line selection, and one to three lines of final selection. The machine, thus, can select material from three different parts of the original and print it in condensed form on one run-off copy at a single pass. Outstanding applications for this include production control, order invoice systems, and statistical work involving the break-down of conglomerate data into its original parts.

Circle No. 128 on Inquiry Card—Page 17

Why specify one sheave instead of another?



TAKE A CLOSE LOOK at this cutaway view of the Worthington QD — the *original* two-piece sheave. See how unique two-piece construction makes it easy to get on, easy to get off. But its heavy-duty split-tapered-cone hub grips shaft tightly, holds fast under the heaviest shock loads.

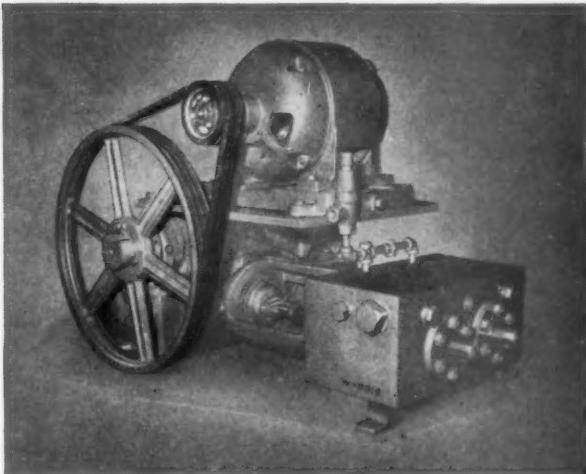


WAREHOUSES LOCATED AT: Kearny, N.J. • Oil City, Pa. • Seattle
San Francisco • Los Angeles • Denver • Tulsa • Ft. Worth • Houston
New Orleans • Chicago • Cleveland • Atlanta, Ga.

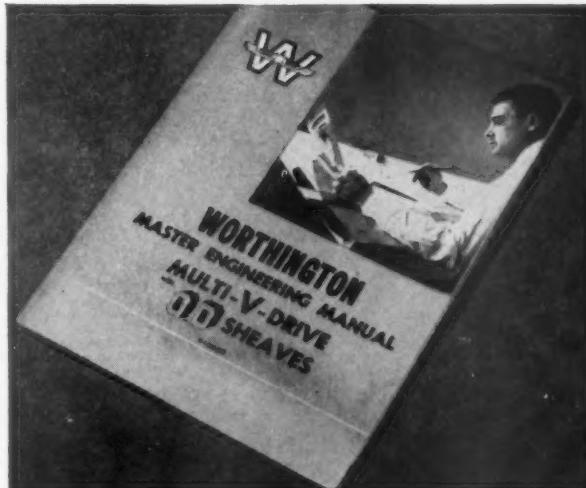
PROMPT SHIPPING SERVICE. Thirteen factory warehouses with stocks covering over 100,000 V-belt drive stock combinations, from $\frac{1}{2}$ to 600 horsepower, support over 250 stocking distributor outlets. These shipping centers can fill your requirements *fast*.

Some folks seem to think there's no difference between sheaves. No matter who makes them or sells them, a sheave's a sheave and a V-belt's a V-belt. Period.

Not our users, though. They know *our* sheave (the Worthington QD) is different. More to the point, they know it's *better* than other sheaves. And easier to get, too. There are Worthington service outlets practically everywhere. Never any delays in stock shipment or service!



SCIENTIFIC DESIGN of QD sheaves not only provides more efficient transmission of power but actually adds to the looks of your product. What's more, I-beam construction of the QD driveN sheaves provides greater strength with less weight.



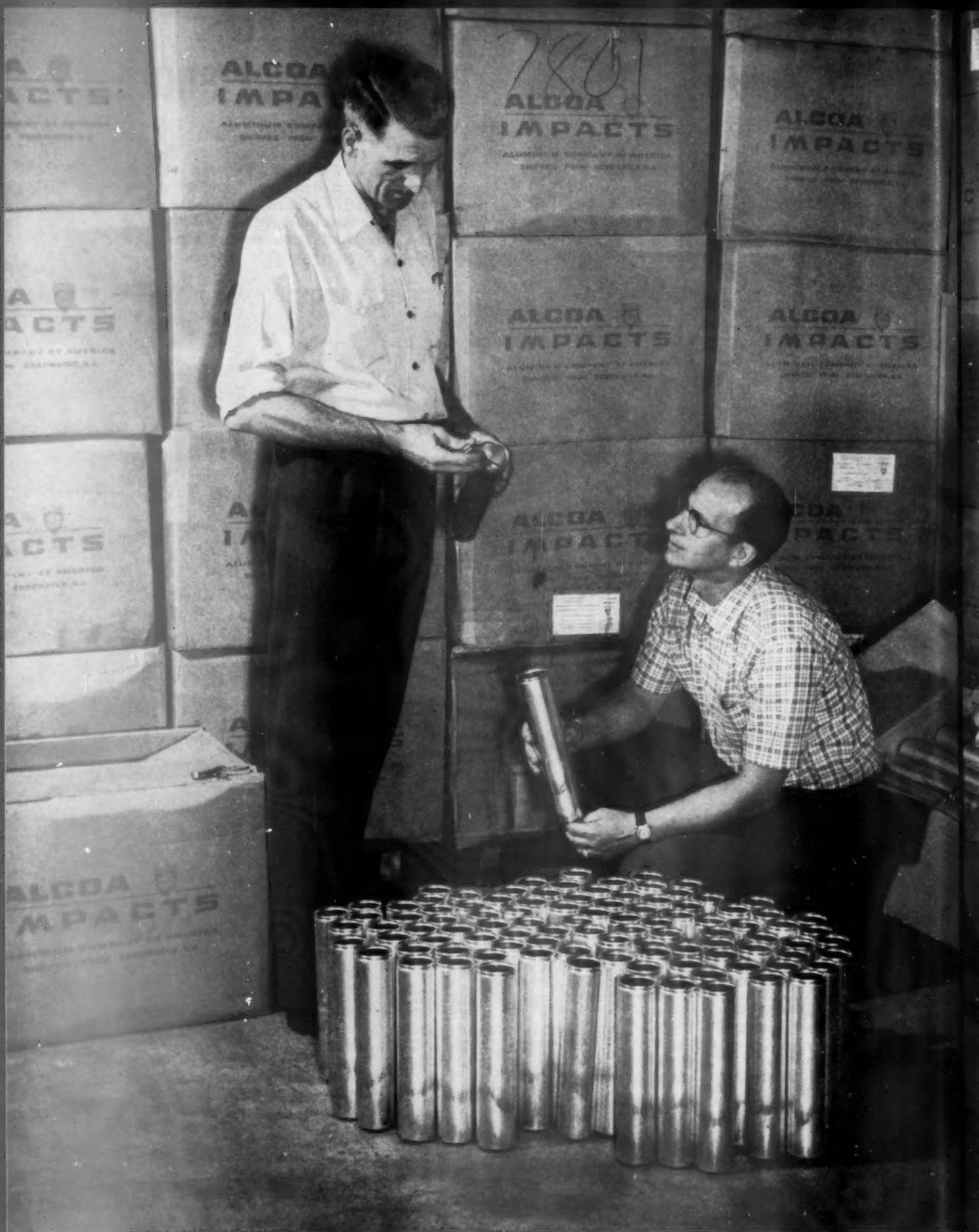
GOOD NEWS for purchasing men is free new 100-page "Master Engineering Manual" which makes sheave and V-belt selection as easy as falling off a drive shaft. Write for it today to Worthington Corporation, Mechanical Power Transmission Division, Sect. MV.5.6, Oil City, Pa. MV.5.6

WORTHINGTON



BUY THESE WORTHINGTON STANDARD PRODUCTS FROM YOUR LOCAL DISTRIBUTOR

Compressors • Pumps • Multi-V-Drives • Variable Speed Drives



Incoming shipment of Alcoa Aluminum Impact Extrusions being checked by Joe Roland, chief inspector, and Bob DeTemple, superintendent of planning, Ansul Chemical Company. Read why Ansul buys impacts from Alcoa.



Lee A. O'Leary, purchasing agent of Ansul Chemical Company, Marinette, Wisconsin, tells how he and his company solved a problem.

“No rejects, reliable delivery, engineering help... *that's why Ansul buys aluminum impact extrusions from Alcoa”*

“Our ‘Emergency Fireman’ supplements our full line of dry chemicals fire-extinguishing equipment. It’s a handy, inexpensive shaker-type unit containing 2 lbs of Ansul PLUS-FIFTY Dry Chemical.

“When we were designing the Emergency Fireman several years ago, we faced the problem of a suitable, long, can-type container. It had to be inexpensive, smooth, rustproof and strong. After experimenting with other methods of fabrication, we found our answer in Alcoa® Aluminum Impact Extrusions. During this development period, Alcoa all but joined our engineering and design staff.

“Alcoa has always met their delivery promises, and we haven’t had rejection problems. Even though our orders are small, they get the same attention from Alcoa as a really big order.

“Those are the main reasons why we buy impacts from Alcoa.”

Ask for your copy of Alcoa’s new *Impact Manual*, write Aluminum Company of America, 1995-KK Alcoa Building, Pittsburgh 19, Pa.



Your Guide to the Best
in Aluminum Value



LOWER HANDLING COSTS

are often attained by using "the one BEST block" for a specific load. **MADESCO** Blocks correctly designed and engineered for your specific operation may effect savings YOU can benefit from!

Twenty-five years' experience in designing and making blocks for "a-thousand-and-one" different uses means that **MADESCO** Blocks help speed hoisting, give trouble-free service, help prolong rope life.

Write—today—for bulletins and consult us about your specific needs.

MADESCO TACKLE BLOCK CO.
EASTON, PA.

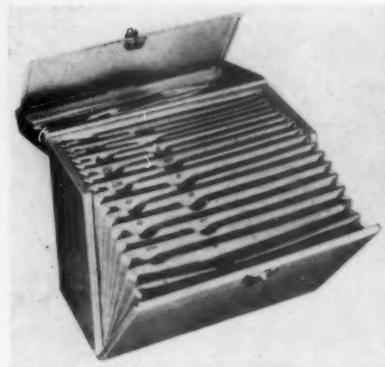
MADESCO
BLOCKS

For More Information Circle No. 427
on Inquiry Card—Page 17

362

CHECK your tackle blocks for best service.
Worn sheave grooves, bearings and pins are expensive.

office equipment



Jayem Sales Corp., Brooklyn, has taken the conventional accordion index file and added a number of special features. Jayem's M-16 Personal File is made of welded steel, with a front that drops forward on hinges to provide complete accessibility to the alphabetized compartment. The M-16 is only one of 15 different sizes and models of files available.

Circle No. 129 on Inquiry Card—Page 17



Collamatic Corp., Wayne, N. J., has added a "Printer Series" to its line of electric collators. Featuring a bin width of 21", the new machines will handle sheets up to 10" x 14", and by using two adjacent bins, will accept sheets up to 20" x 14". There are 16 models in the series, 8, 12, 16 and 24 bin models in either console or tabletop styles.

Circle No. 130 on Inquiry Card—Page 17

The Drill Sarge says...

"New York
Twist Drills
K.O. more
rivets!"



New York's "Knockout" Drills extra tough for one of Aircraft Industry's toughest assignments

Aircraft modification requires removal of thousands of rivets and these Knockout Drills remove more of them per minute—another new development by the engineers of New York Twist Drill Company. They're made for aluminum as well as titanium and stainless steel, and aircraft plants report an improvement of almost two to one over drills formerly recommended for the job. So do trailer companies with similar operations.

Extra smooth flutes and accurate points on New York drills improve drilling performance in all tough metals and plastics, and you save 20% on your twist drill bill! New York drills last longer and you get more holes, all perfectly round and exactly on size without burrs on the break through. Split points at no extra charge, aid in biting in.

THESE NEW YORK DRILLS
ALWAYS IN FINISHED STOCK
...All popular aircraft sizes, in standard lengths and aircraft extension, 8" and 12"

Write now for catalog,
technical manual and
net prices

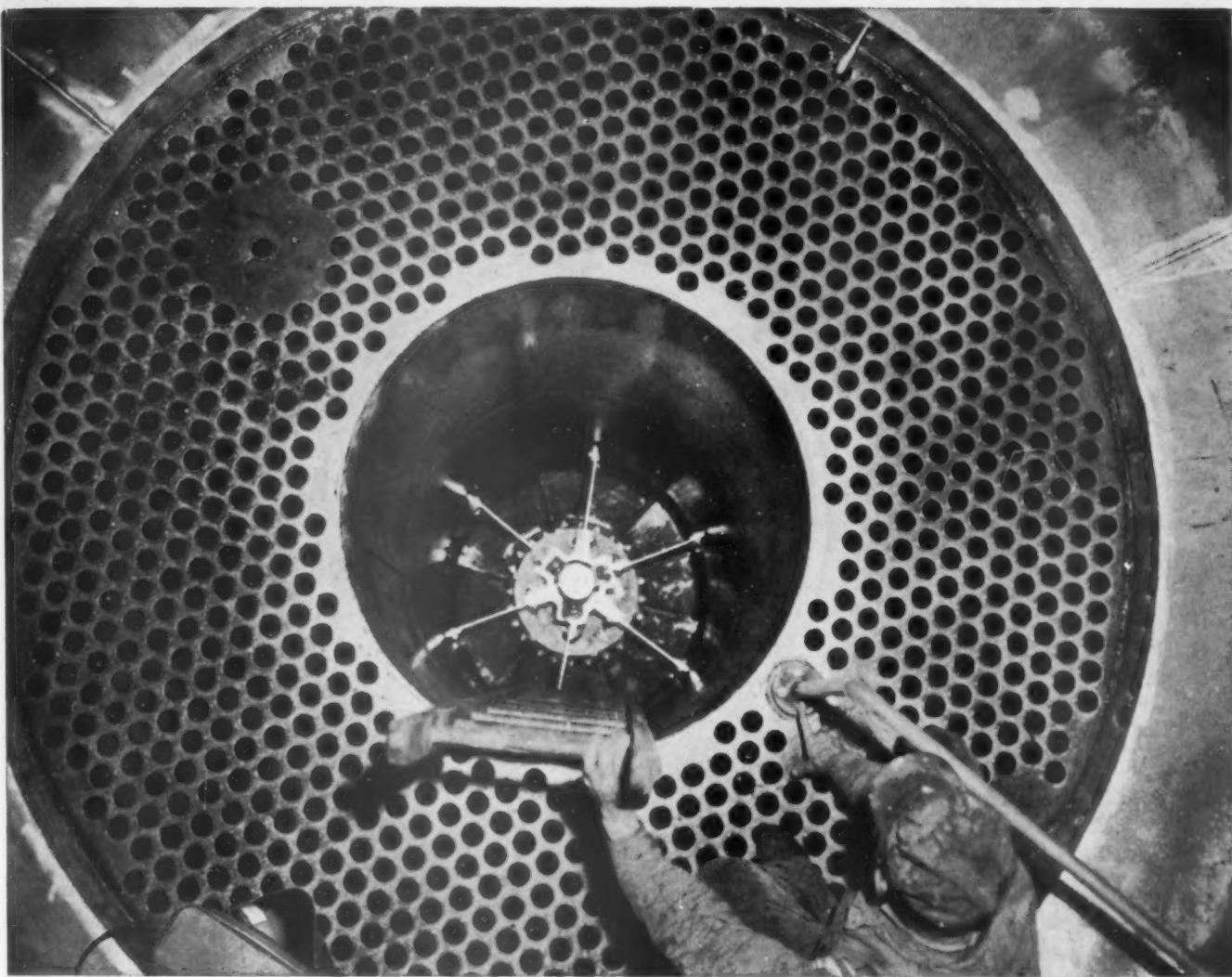


**NEW YORK TWIST DRILL
COMPANY, INC.**

EASTERN HEADQUARTERS:
278 Lafayette Street, New York 12, N. Y.
MIDWESTERN HEADQUARTERS:
30-A North Clinton Street, Chicago 6, Ill.

For More Information Circle No. 428
on Inquiry Card—Page 17

PURCHASING



Switching to *Carpenter* Stainless Tubing pays off 5 ways!

How can you use the five advantages gained by a prominent distillery when it changed to Carpenter Stainless Tubing for a new stillage evaporator?

Twice the service life . . . greater operating efficiency . . . lighter weight . . . greater carrying capacity . . . and a higher cost-life ratio are the proven results obtained with more than a mile of Carpenter Stainless Tubing in this evaporator.

Additional proof of how Carpenter quality pays off on job after job is available from your Carpenter Distributor. Discover the profitable difference Carpenter can make on your own processing and transfer lines, evaporators, heat exchangers and similar applications.

Talk to your Carpenter Distributor now about cost-savings you may be able to obtain by switching to

Carpenter Stainless Tubing or Pipe. Remember, you are sure of getting the highest possible degree of perfection in Carpenter tubing because it must pass the most exacting non-destructive test ever applied to stainless tubing.



**The Carpenter Steel Company,
Alloy Tube Division, Union, N.J.**

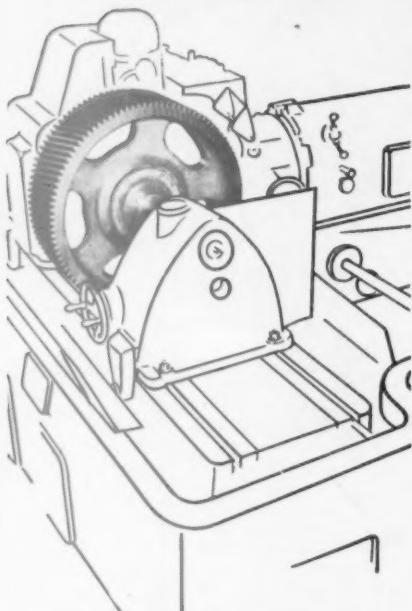
Export Dept.: The Carpenter Steel Co., Port Washington, N.Y.—"CARSTEELCO"

Carpenter

Stainless Tubing & Pipe

more than corrosion resistance

accurately shaved



Philadelphia GEARS world standard of excellence

Shaved gears are more accurate, smoother finished, quieter-running—with greater load-carrying ability and longer service life. Shaving corrects minor eccentricities, produces a more precise helix angle and assures a bright, smooth surface. In many cases, shaving gears before hardening considerably reduces the lapping and grinding operations normally required after hardening.

Next time you need gears, call your local Phillie Gear representative for fast, accurate information and service... Our experienced gear engineering department is ready and willing to help you with your gear problems.

Send for new 76-page Gear Book, which explains Gear Shaving, as well as every other method of producing the finest gears of all types, sizes and materials... Please use your Business Letterhead when requesting a copy.

phillie gear®

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INDUSTRIAL GEARS & SPEED REDUCERS
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FLUID MIXERS • FLEXIBLE COUPLINGS

Virginia Gear & Machine Corp. • Lynchburg, Va.
See the newest developments in Mechanical Power Transmission at our Booth 80-22nd National Power Show, New Coliseum, New York City, November 26-30.

For More Information Circle No. 430
on Inquiry Card—Page 17

364

office equipment

The Perfelope, a continuous form envelope has been added to the line of business forms available from The Standard Register Co., Dayton, O. Mounted on marginally-punched continuous carrier sheets by means of $\frac{1}{2}$ " perforated glued stubs. Perfelopes come immediately ready for high speed continuous operation over typewriters, tabulators, addressing machines, and other units using pinfeed devices. Separated from its carrier sheet, a Perfelope resembles any conventional V-flap envelope. Detaching is fast and the envelopes can be handled individually by most stuffing and mailing machines. They are available in a wide variety of standard sizes and paper weights, as well as special sizes and types.

Circle No. 131 on Inquiry Card—Page 17



Classic Calculators, Inc., New York, a subsidiary of Rex-Rotary Distributing Corp., is introducing its new Classic 10-key printing calculator. As a multiplier, it gives fast, automatic, short-cut multiplications. As a duplex, its two registers operate from a single keyboard, at the same time, and produce separate and distinct totals. Thus, credit and debit columns can be figured simultaneously and the answers will be given separately—resulting in the

(Please turn to page 366)

USER SAYS TAP LIFE UP 43%
ON THIS THIN-WALLED CASTING



...thanks to
FERROCARBO®

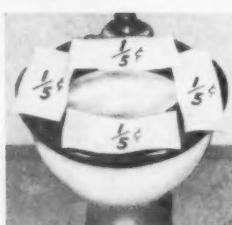
Users everywhere report similar experiences. In fact, on 67 machining tests in 11 large machine shops, castings of gray iron treated with FERROCARBO averaged 89.5% greater machinability per tool than untreated castings. These premium castings are finer-grained, denser, stronger, yet they COST YOU NO MORE...because your foundryman, using FERROCARBO, makes worthwhile savings in raw material costs.

FOR FREE BOOKLET on FERROCARBO, citing actual case histories of faster machining, with longer tool life, write The Carborundum Company, Dept. 36, Niagara Falls, N.Y. 84-56

CARBORUNDUM®

For More Information Circle No. 431
on Inquiry Card—Page 17

A way to save
that everyone likes



SANITOR
SEAT COVERS

Economy measures are often unpopular in office, store or plant. But not Sanitor seat covers. Here's a better way for employees and customers to secure personal sanitation without fuss or bother. They cost less than make-shift towels or toilet tissue... keep rest rooms neat and tidy.

Sanitor

TISSUE TOILET
SEAT COVERS

SANITOR MFG. CO.

KALAMAZOO, MICH.

For More Information Circle No. 432
on Inquiry Card—Page 17

PURCHASING

Here comes 1957---

fast and sure on United!



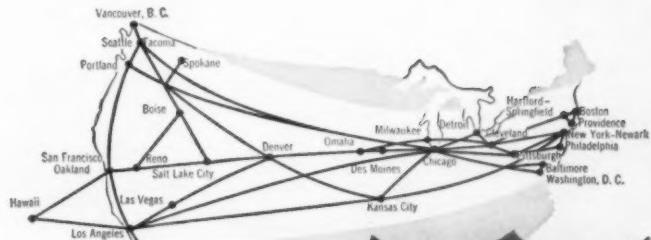
DISPLAY SAMPLES of '57 models leaving the East Coast tonight on United's 300-mph DC-6A "Big Lift" Cargoliners will be in the hands of West Coast distributors by noon tomorrow. Cost for 100-lb. shipment, New York to San Francisco—\$24.55*.

YOU CAN DEPEND ON UNITED—United's Reserved Air Freight guarantees the space you need on the flight you want. . . . Frequent Mainliner and Cargoliner departures, plus the most modern cargo handling facilities, get your shipment off the ground fast. . . . And United's weather-mapping radar helps assure *on-time* arrival.

Examples of United's low Air Freight rates

	per 100 pounds*
CHICAGO to CLEVELAND	\$4.78
NEW YORK to DETROIT	\$5.90
DENVER to OMAHA	\$6.42
SEATTLE to LOS ANGELES	\$9.80
PHILADELPHIA to PORTLAND	\$24.15
SAN FRANCISCO to BOSTON	\$27.00

*These are the rates for many commodities. They are often lower for larger shipments. Rates shown are for information only, are subject to change, and do not include the 3% federal tax on domestic shipments.



SHIP FAST...SHIP SURE...SHIP

For service, information, or free Air Freight booklet, call the nearest United Air Lines Representative or write Cargo Sales Division, United Air Lines, 36 South Wabash Avenue, Chicago 3, Illinois.

UNITED
AIR LINES

For More Information Circle No. 433 on Inquiry Card—Page 17

LENOX
QUALITY TOOLS

HACK SAWS

BAND SAWS

GROUND FLAT STOCK

HOLE SAWS

The Tools in the Plaid Box

AMERICAN SAW & MFG. COMPANY
SPRINGFIELD, MASS.

For More Information Circle No. 434
on Inquiry Card—Page 17

office equipment

(Continued from page 364)

balance. As a grand totalizer, it produces grand totals for many different groups of additions and subtractions. The Classic retains multiplication results in its memory and uses them, without re-entry, for further operations.
Circle No. 132 on Inquiry Card—Page 17



Maso Steel Products, Inc., Chicago, is marketing a budget-priced all-steel office utility stand. Called the "Jet", it uses an offcenter brace for added leg room and extra rigidity. It has a letter-size steel drawer, rolled-edge legs, casters, and is finished in baked-on gray, green, brown, tan, and mist green enamel.

Circle No. 133 on Inquiry Card—Page 17



A continuous type facsimile recorder which automatically records messages sent by facsimile over a telephone circuit has been announced by Times Facsimile Corp., New York. Known as the RLM-4, it operates under control
(Please turn to page 370)

COOPER ALLOY

CORPORATION BRIEFS

• Edited by GEORGE BLACK

CORED SIGMA BLADE

1500 lb. stainless steel sigma blade not only has to be corrosion resistant and dimensionally accurate, but a 1½" cored hole, centrally located with respect to the various cross sections is required throughout its length.

The full story is told in Cooper Alloy AKH #4



KEL-F LINERS FOR VANTON PUMPS

The addition of Kel-F to the long list of rubbers and plastics now available for liners makes the Vanton pump suitable for handling such media as fuming nitric and other strong oxidizing acids, mineral acids, alkalies, aliphatic solvents and hydraulic fluids.

Details on request.



STAINLESS STEEL RETARDERS

Cooper Alloy stainless steel retarders in the Cyclotherm Generator help to produce additional heat transfer with maintenance-free reliability. Known as Cyclotherm Cyclonic Combustion the new principle delivers a guaranteed 80% heat transfer in two passes and drops maintenance costs as much as 50%.



COOPER ALLOY
CORPORATION • HILLSIDE, N.J.

For More Information Circle No. 435
on Inquiry Card—Page 17
For More Information Circle No. 436
on Inquiry Card—Page 17→

BARIUM STEEL—active in America's growth



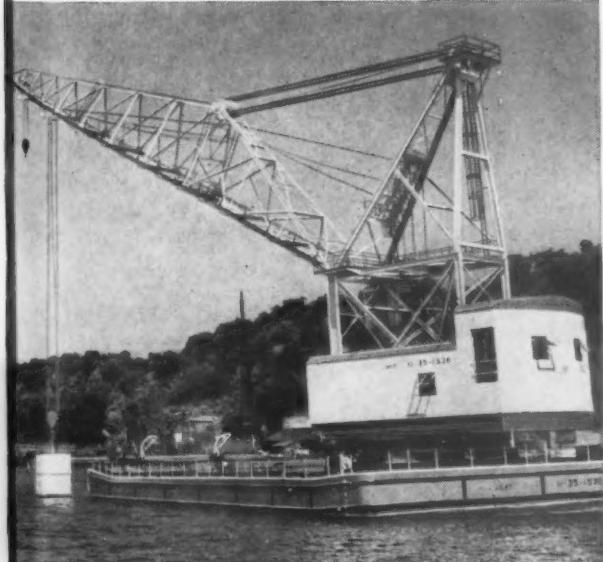
HIGHWAY CONSTRUCTION won't be slowed down by waterways as long as Barium's Phoenix Bridge Company fabricates steel and builds bridges. This handsome 500 foot, 900-ton continuous deck plate girder highway bridge, was built by Phoenix for the New York State Department of Public Works. It spans the Susquehanna River at Bainbridge, New York.



PROCESS PLANT builders shop at Barium, too. This large Gas Scrubber Separator unit (at left) was fabricated by the Plate Division of Barium's Phoenix Iron & Steel Company. Too big to go by railroad, a special truck rig delivered it to the job site at Farrel, Pa.



CHEMICAL INDUSTRIES take advantage of the alert management thinking that has built Barium from 1 to 12 soundly diversified companies in ten short years. Here at Barium's Industrial Forge & Steel Inc., they're rough machining a 7900 lb. carbon steel forged sleeve for a leading chemical concern.



AUTOMOBILE gears, shafts and shifters are pounded out on hammers at Barium's Globe Forge, Inc. Automotive springs, fasteners and stampings come from other Barium companies. For more facts on Barium, write Barium Steel Corporation, 25 Broad Street, New York 4, N.Y.



STEEL PRODUCERS

Phoenix Iron & Steel Co.
(Plate Div.; Structural
Div.; Steel Tube Div.;
Blast Furnace Div.)

STEEL FABRICATORS & PROCESSORS

Phoenix Bridge Company
• Industrial Forge & Steel,
Inc. • Globe Forge, Inc.
• The Geometric Stamp-
ing Company

ARMED FORCES have learned what we mean by Barium's integrated operations. Though the Air Forces' biggest (50-ton design capacity) floating crane bears the nameplate of Barium's Wiley Manufacturing Co., four separate Barium companies pooled talents to produce it. Just one more chapter in "The Barium Story"—complete product listing is in Thomas Register, Section A to Z.

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MANUFACTURERS OF END PRODUCTS

Clyde Iron Works, Inc. • Erie Bolt and Nut Company • Bayonne Bolt Corporation • The Cuyahoga Spring Company • Jacobs Aircraft Engine Company • Wiley Manufacturing Company

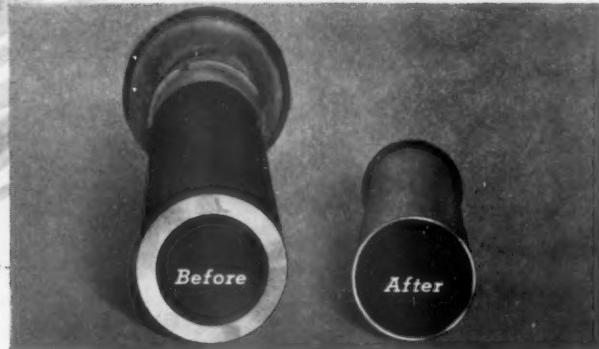
LIGHTWEIGHT METAL AND PLASTICS

East Coast Aeronautics, Inc.

THEY "SKIN" STEEL TUBES



*to put PEP
in this DIESEL!*



Courtesy: Van der Horst Corp. of America

This powerful diesel loses its pep when cylinder liners become excessively worn. Formerly, this reoccurring ailment called for reboring — an operation that reduced the liner wall and its mechanical strength. In time, costly castings had to be scrapped. Now — a unique application of Frasse tubing helps put them back in service . . . indefinitely! Here's how.

By means of a newly developed electrolytic bath, the bore of the worn liner is plated with a precise layer of pure iron etched from the surface of a steel tube. It is then restored to original size — ready for service again.

The success of this precision plating operation depends on quality tubing that is dimensionally uniform. Frasse tubing — from warehouse stock — has met this rigid requirement for many years without a single rejection.

There is no fear of non-uniformity when you work with Frasse tubing. You get the same trouble-free quality with every order. And, remember Frasse tubing specialists are available to consult with you in applying tubing to your product advantageously, or in solving a tube problem. Whenever you need tubing — you'll be pleased with the extra services you get — simply by calling Frasse.

Frasse for Tubing....

Seamless and Welded Mechanical Tubing
Pressure, Condenser and Hydraulic Tubes
Stainless Tubing, Seamless and Welded
Stainless Pipe, Valves and Fittings
Aluminum Tubing, Pipe and Fittings
PVC Plastic Pipe, Valves and Fittings

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IF TIRE REPLACEMENT COSTS ARE EATING YOU UP . . .



TORTURE TESTS PROVE...



BEFORE . . . Monarch Mono-Cushion and two competitive tires looked alike.



AFTER . . . there was no doubt! Only the Mono-Cushion still was usable.

MONARCH
Mono-Cushions®
Wear Better...
Last Longer

SWITCH TO MONARCH INDUSTRIAL SOLID TIRES

You can't assume all lift truck tires are equal in mileage and economy just because they *look* alike when new. They aren't.

The difference . . . important to every solid tire user . . . is "inside". It's the blending of top quality materials and special production techniques. Some tire compounds, like Monarch's new T-48C, have proven outstanding on all counts. Others . . . well, those are the tires you have to replace frequently. And that can be costly!

Solid tires are Monarch's specialty. That is why Monarch can give you premium quality tires . . . tires with superior resistance to cutting, chipping and splitting . . . at normal prices.

Try them. If economy is your goal . . . Monarch is your tire!

6693-MR



THE
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RUBBER COMPANY

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WESTERN STATES REGIONAL OFFICE
1035 Bartlett Street, Hayward, Calif.

Write for BULLETIN TD-200 for the complete story . . . or refer to Yellow Pages for name of nearest dealer.



For More Information Circle No. 438 on Inquiry Card—Page 17

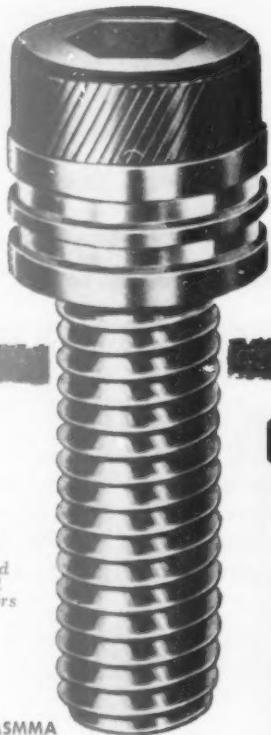
a complete line of

VIBRATION PROOF "STANDARDS"!

Blue Devil SAF-LOK SOCKET CAP SCREWS

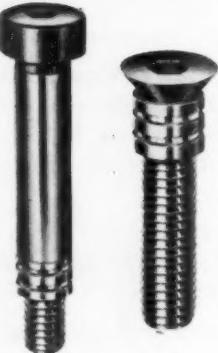


BLUE DEVIL SAF-LOK CAP SCREWS come in a complete line of sizes from #6 to 1" diameters, giving you a wide selection almost equal to what you'll find in ordinary socket cap screws. But these are different . . . remaining tight against any and all vibration. And only Blue Devil's got them!



Sold only through authorized industrial distributors

Member ASMMA



SAF-LOK ALSO FOR
SHOULDER SCREWS AND
FLAT HEAD SOCKET SCREWS
... all three make
an absolute seal against
oil, water, gas and
air as well as
vibration.



Socket Screws Exclusively
SAFETY SOCKET SCREW COMPANY

6502 North Avondale Avenue, Chicago 31, Illinois

Warehouses at: Los Angeles • San Francisco • Detroit • New Haven, Conn.

For More Information Circle No. 439 on Inquiry Card—Page 17

office
equipment

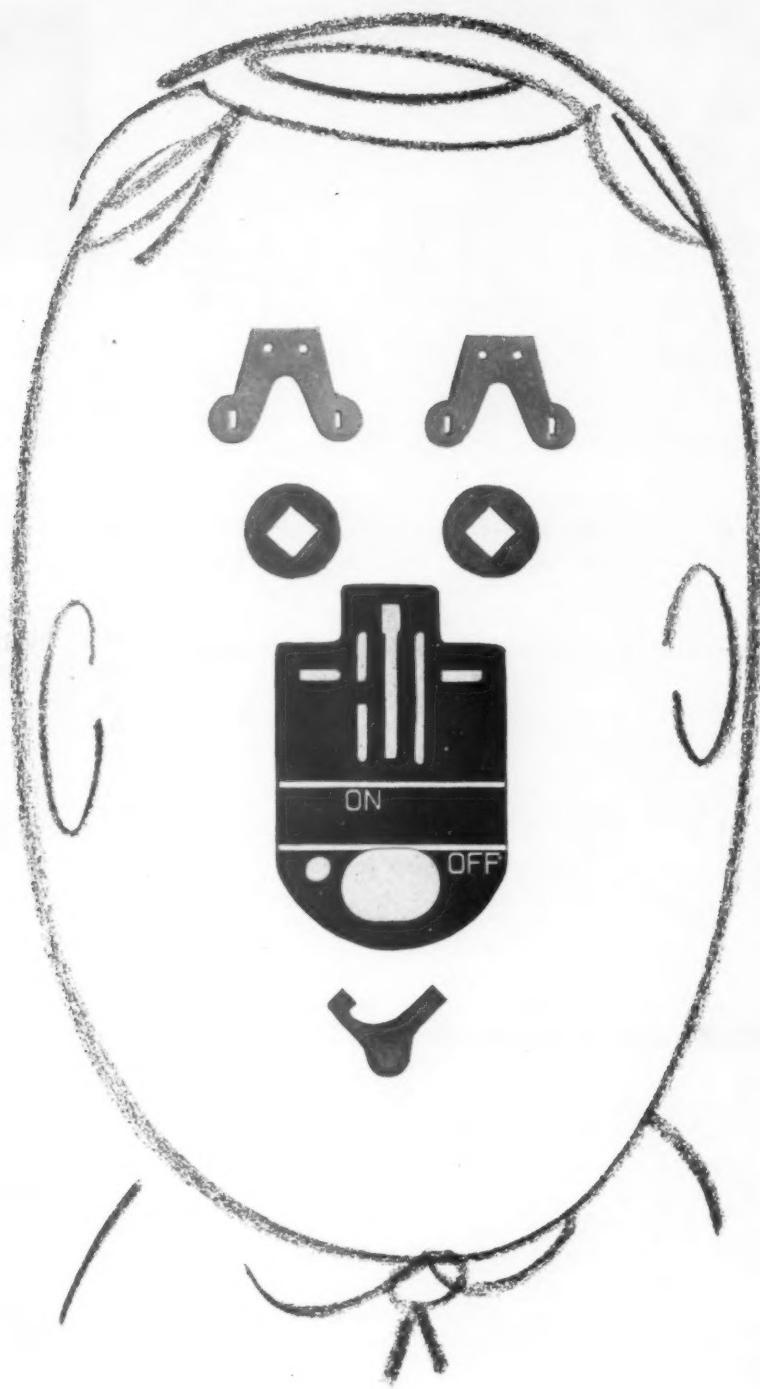
(Continued from page 366)

of transmitted facsimile signals and will automatically phase and start recording at the beginning of a message and stop when the message is completed. The recording is made directly on a dry, electrosensitive paper which requires no processing before use. Timefax NDA recording paper is used when only a single copy is needed. When Planifax N recording paper is used, the message can be duplicated by offset. Timefax A is used for the gelatin process of reproduction. For best results, the circuit used should have a frequency response which is flat within ± 2 DB between 1200 and 2600 cps, and the total delay distortion over this band should not exceed ± 200 microseconds.

Circle No. 134 on Inquiry Card—Page 17



A book stand, featuring a self-leveling top, has been announced by **Tiffany Stand Co., St. Louis**. The Tiffany Deluxe Book Stand uses balanced spring action and floating top panels to automatically level the pages of bulky books, making all pages equally easy to read. The stand is adjustable for height, the top swivels, (Please turn to page 372)



How National takes the worry out of parts procurement...

You're sure of getting the parts you want—to your specifications—from your blueprints—because National has been a reliable source of fabricated parts for more than 30 years.

You get unbiased recommendations on properties because National's line of basic materials—widest in the industry—includes over 80 grades of laminated plastic, vulcanized fibre and nylon.

You get promised delivery because National manufactures the basic materials and maintains 4 fabricating plants with production equipment for every fabricating operation.

Get the facts on National Fabricated Parts. See how you may profit . . . send for our free illustrated booklet on fabricated parts—"Management Decision for Profit." Address Department B-10.



NATIONAL VULCANIZED FIBRE CO. WILMINGTON 99, DELAWARE

In Canada: National Fibre Company of Canada, Ltd., Toronto 3, Ontario

For More Information Circle No. 440 on Inquiry Card—Page 17



...FOR SAFETY SPECTACLES

that combine the protection your workers need with the style and comfort they want.



New Style WFH

Handsome safety spectacle with new lens shape in frames with demi-amber overlay on upper half of crystal butyrate.



Exclusive Contour-Spec®

Patented hinged bridge makes this spectacle the most comfortable to wear. Provides full closure around eye cavity.



Convenient Kover-Mor®

This roomy style CC70 goggle is roomy enough to go over almost any style of personal glasses. Rigid top bar makes them easy to put on and take off with one hand.

...FOR RESPIRATORS AND GAS MASKS

for almost any respiratory hazard. The Willson line carries more Bureau of Mines approvals than any other.



Interchangeable Series 800

This is the first truly interchangeable respirator. It requires no additional parts or accessories to make use of 4 different cartridges and 4 different filters or combinations of both.



Super-Tough Phenolic

This toughest of all safety hats is reinforced with ten individual die-cut pieces of sturdy duck and molded under pressure to withstand repeated drop-ball tests without fracture!



WILLSON

PRODUCTS DIVISION
RAY-O-VAC COMPANY

221 Washington Street • Reading, Pennsylvania

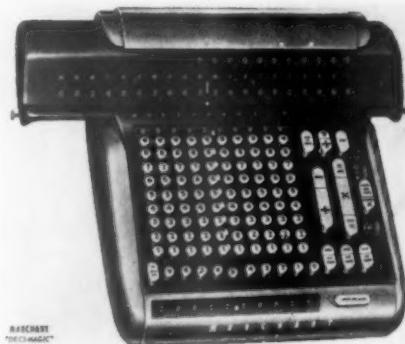
For More Information Circle No. 441 on Inquiry Card—Page 17

office equipment

(Continued from page 370)

and the unit is movable on silent 2" ball bearing casters. It occupies only 16" x 21" of floor space, and adjusts from 27" to 41" in height. It comes in silvertone gray, walnut brown, dark office green, mist green and beigetone.

Circle No. 135 on Inquiry Card—Page 17



Three new calculators have been announced by Marchant Calculators, Inc., Oakland, Calif. The "Deci-Magic" automatically sets decimal points in the keyboard and all four dials, and positions the carriage for any type of calculation. All entries to the keyboard are around the selected decimal point. All answers are automatically pointed off correctly. Clearances of keyboards and dials during and upon completion of a problem are automatic, with



selective non-clearance for the keyboard and each of the four dials by means of individual locks. The machine has a separate front dial for visual check of individual or constant multipliers. It has

(Please turn to page 376)
For More Information Circle No. 442
on Inquiry Card—Page 17→
PURCHASING

U.S.I. CHEMICAL NEWS

October



A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries



1956

U.S.I.'s 50-YEAR HISTORY PARALLELS INDUSTRIAL CHEMICAL GROWTH IN U.S.

First Organized to Serve Industrial Alcohol Users;
Company Later Expanded to Produce Alcohol-Based Chemicals

Present Growth Aimed at Wide Diversification



ATTENTION

Users of Taxfree and Speci- ally Denatured Alcohol

Now is the time for users of specially denatured alcohol to renew their basic permit (Treasury Department Form 1479) for 1957. It is also time for users of taxfree alcohol to complete and file with the Assistant Regional Commissioner — Alcohol and Tobacco Tax Division — their application (Form 1450) for renewal of their taxfree Alcohol permit for 1957.

It is recommended to permittees who withdraw industrial alcohol in drums that total gallonage of renewal permits be calculated to cover withdrawals in multiples of 55. If you require renewal forms or any assistance in their preparation, please call your nearest U.S.I. office.

The Denatured Alcohol Act passed by Congress on June 7, 1906 was a historic piece of legislation. By freeing industrial alcohol from the taxes applied to beverage spirits, it set the stage for an unprecedented expansion of the chemical industry.

Four months after passage of the act, on October 17, 1906, the organization known today as U. S. Industrial Chemicals Co. was formed to serve industrial users of alcohol under the new law.

Leader in Alcohol

By 1916, through construction and acquisition, U.S.I. had become the leading producer of industrial alcohol in the country. In that year the company came onstream with what was then the world's largest and most modern alcohol plant. This plant doubled U.S.I. capacity in a single year.

A sound sales organization already existed, based upon the acquisition in 1915 of the famous House of Webb, largest alcohol distributor in U. S. at that time.

World War I precipitated U.S.I. into the chemical business. In 1916 a plant went up

at Fairfield, Baltimore to produce acetone from ethyl alcohol to meet British war requirements. Other chemicals from ethanol were soon forthcoming — materials first produced in this country as a result of research carried on in U.S.I. laboratories from 1916 to 1925. During the 1930's and 40's the company began production of butyl alcohol and derivatives and scored a number of advances in insecticide and resin technology. U.S.I. also pioneered the production of synthetic DL-Methionine, an important sulfur bearing amino acid, used in pharmaceuticals and for animal nutrition.

Rapid Growth Since 1950

In 1951, U.S.I. merged with National Distillers, whose subsidiary, National Petro-Chemicals Corporation, was then building at Tuscola, Illinois a huge synthetic ethyl alcohol plant. Until that time, all alcohol U.S.I. made was produced by fermentation. Now with the industrial alcohol capacity of the Tuscola plant equal to 25% of the na-

MORE

U.S.I. to Build New Titanium Sponge Plant

Plans to construct a new plant for production of 10 million pounds per year of titanium sponge have been announced by U.S.I. Location of the plant will be Ashtabula, Ohio, site of U.S.I.'s sodium plant and the U.S.I. zirconium sponge plant now under construction.

High-quality titanium sponge will be produced by a new sodium reduction process similar to the one planned for production of zirconium sponge. Use of the new process is said, by U.S.I. officials, to produce a higher purity titanium sponge than the conventional magnesium reduction process at a lower cost than any existing commercial technique. Output of the new plant will be sold to commercial users. It was pointed out by Dr. R. E. Hulse, Vice President of National Distillers in charge of Chemical Operations, that this is the first titanium plant to be built without a government procurement guarantee.

Titanium metal has a great potential, especially in the aircraft industry, because of its high strength-weight ratio. Its excellent corrosion resistant properties also make titanium a promising material of construction for many chemical processing applications.



New York's Broadway at Canal Street in 1835 — "Webb's Emporium of Light" on the corner specialized in alcohol lighting fuels, later became a leading distributor of alcohol for industrial and scientific use. The firm was acquired by U.S.I. in 1915 and formed the nucleus of the present U.S.I. sales organizations.

October ★

U.S.I. CHEMICAL NEWS

CONTINUED

50 Years

tion's previous output, U.S.I. continues to use the fermentation process only at its Anaheim, California, and New Orleans plants.

The merger also made U.S.I. a large scale producer of sodium, sodium peroxide and chlorine. Within the past three years, new plants have been completed for production of ethyl chloride, polyethylene, ammonia, and sulfuric acid. Other plants, built or acquired, added caustic-chlorine facilities to the growing list and increased sulfuric acid capacity. Now under construction or on the drawing boards are four new plants to produce phosphoric acid, sebacic acid isomers, zirconium sponge and titanium sponge. Polyethylene capacity meanwhile is being almost doubled.

This month, at 50, U.S.I. is still expanding with youthful vigor—still looking ahead—to new products new methods, new services for a mushrooming chemical industry.

Urethan Increases Enzyme Activity

Working with guinea pigs, European researchers found that urethan produced an increase in enzyme activity of ribonuclease, cytochrome, lactic dehydrogenase, succinic dehydrogenase.

Method for Coating Drums With Polyethylene Revealed

A new patent describes a process for lining steel drums with polyethylene, in thicknesses claimed to be greater than previously possible on a commercial basis. In the new technique, powdered resin is tumbled through preheated drums, where the hot metal fuses the polyethylene into a smooth, continuous lining. Thicknesses of 8 to 30 mils can be deposited, depending on the end use.

The drum is first preheated to a temperature high enough to remain above the melting point of polyethylene throughout the entire lining operation, yet low enough to avoid charring the resin.

Polyethylene powder is then tumbled through while the drum is rotated. An excess of powder acts as an insulator to retard cooling, while its weight serves to consolidate softened particles into the coating.

U.S.I. Now Lends Pilot Unit to Customers to Make Sodium Dispersions

U.S.I. has designed and built a pilot plant unit which it will lend to interested researchers for preparation and evaluation of sodium dispersions at point of use.

The unit has a batch capacity of three gallons of dispersion—finely divided sodium suspended in inert hydrocarbon medium. A number of companies have already taken advantage of this U.S.I. service to speed development of their experimental projects.

Since the unit is fabricated from readily available parts, identical or larger units can be constructed easily by companies considering long term studies. U.S.I. Technical Service people will provide the design information necessary for fabrication of such units.



ALCOHOLS:

Ethyl Alcohol (Ethanol)—Specially denatured—all regular and anhydrous formulas.
Completely denatured—All regular formulas for industrial use, anti-freeze. Pure alcohol—USP 190°—Absolute, N.F., taxfree, taxpaid.

Butanol (Normal Butyl Alcohol)—Latent solvent for nitrocellulose, solvent for ethyl cellulose, many resins, many chemical syntheses.

Amyl Alcohol, Refined—Fine chemicals, pharmaceuticals.

Fusel Oil, Refined—Blend of amyl alcohols refined by chemical treatment, distillation.

Proprietary Denatured Alcohol Solvents
SOLOX®—General-purpose.
FILMEX®—Special, authorized for certain industries.
ANSOL® M—Anhydrous, special blend for lacquers, resins, etc.
ANSOL® PR—Anhydrous, special blend with higher ester content and solvency for lacquers, resins, etc.

PETROTHENE® Polyethylene Resins.

Inorganic Chemicals: Ammonia, Caustic Soda, Chlorine, Metallic Sodium, Sodium Peroxide, Sulfuric Acid.

Esters, Ethers and Ketones: Normal Butyl Acetate, Dibutyl Phthalate, Diethyl Carbonate, Diethyl Oxalate, Ethyl Acetate, Ethyl Ether, Acetone.

Intermediates and Fine Chemicals: Acetoacetylides, Ethyl Acetoacetate, Ethyl Benzoylacetate, Ethyl Chloroformate, Ethylenes, Ethyl Sodium Oxalacetate, Sodium Ethyl solution, Urethan USP (Ethyl Carbamate), Dimethyl Hydrazine, Methyl Hydrazine, Aluminum Trimethyl.

Animal Feed Products: Calcium Pantothenate, Choline Chloride Products, Curby B-G® 80, Special Liquid Curby®, DL-Methionine, Niacin USP, Riboflavin Concentrates, Vitamin B₁₂ and Antibiotic Feed Supplements, Vacatone® Products, Vitamin A, D₃ and K₃ Products, Antioxidant Products.

Pharmaceutical Products: DL-Methionine, N-Acetyl-DL-Methionine, Riboflavin USP, Urethan USP, Intermediates.

OTHER PRODUCTS:

U.S.I. SALES OFFICES

Atlanta • Baltimore • Boston • Buffalo • Chicago • Cincinnati
Cleveland • Dallas • Detroit • Houston • Indianapolis • Kansas City, Mo.
Los Angeles • Louisville • Minneapolis • Nashville • New Orleans
New York • Philadelphia • Pittsburgh • Portland, Ore. • St. Louis
Salt Lake City • San Francisco • Seattle



INDUSTRIAL CHEMICALS CO.
Division of National Distillers Products Corporation
99 Park Avenue, New York 16, N.Y.

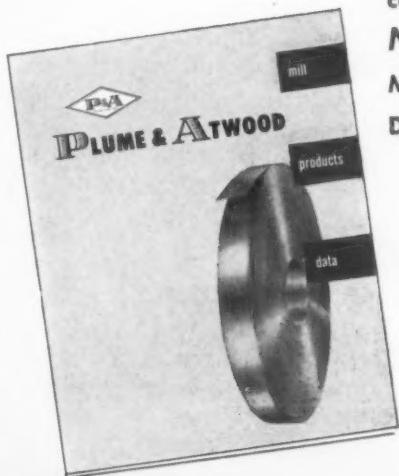


P&A

where the focus
is on service

Your order for sheet or strip in our rolling mill means real customer satisfaction — it means Service in the form of *on-schedule* production — and *on-time* deliveries. We aim to serve you, — on time!

Write for your
copy of our
NEW Book —
MILL PRODUCTS
DATA



Call on us for **BRASS**
NICKEL SILVER
PHOSPHOR BRONZE



MILL DIVISION

THE **PLUME & ATWOOD**
MANUFACTURING COMPANY

Thomaston, Conn.

For More Information Circle No. 443 on Inquiry Card—Page 17



**BUILD
PRODUCTION
AROUND
THE BEST**

Mall

- 1 Electric Impact Wrench
- 2 Electric Drill
- 3 Electric Polisher
- 4 Sander
- 5 Electric Screwdriver
- 6 Pneumatic Impact Wrench
- 7 Pneumatic Grinder
- 8 Pneumatic Drill
- 9 Electric Circular Saw



Here are tools that provide effortless power for hundreds of production line jobs. Over the years leading firms have proved to themselves that to specify **MALL TOOLS** is to specify "satisfaction" for everyone involved with the use of power tools. MALL tools stay on the job longer and are easier to keep on the job. MALL Tools keep production "on the move." Send for your FREE copy of the **MALL Portable Power Tool Catalog** or **Pneumatic Tool Catalog** today.

MALL TOOL COMPANY
Division of Remington Arms Company, Inc.
7791 South Chicago Avenue, Chicago 19, Ill.
Please send your latest Portable Power Tool Catalog Pneumatic Tool Catalog

Name _____

Address _____

MU-225

For More Information Circle No. 444
on Inquiry Card—Page 17

office equipment

(Continued from page 374)

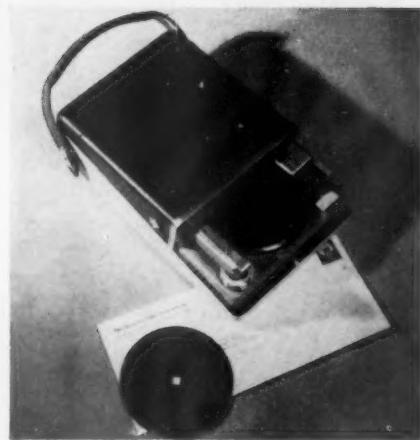
automatic single-entry squaring, half-cent round-off, and accumulation of products and quotients, and grand total accumulation. The "Twin-Set" Figurematic features double entry in the keyboard dial through a single entry in the keyboard. Figures entered in the keyboard appear at both the right and left sides of the keyboard dial. As the entry is multiplied,



the product appears in the left and right half of the product dial on the carriage. Extensions accumulate in the left half of the product dial. Thus, the "Twin-Set" permits grand total accumulation and individual extensions with a single entry. It is ideal for checking invoices, orders and billings, taking inventory, auditing, etc. The "Rapid Multiplier" is specifically designed to perform multiplication at high speed.

Circle No. 136 on Inquiry Card—Page 17

The lightest, smallest, most compact **dictating machine** of its type is now being marketed, according to an announcement from **The SoundScriber Corp., New Haven, Conn.** Called the SoundScriber 200, it weighs less than 6 lbs., is 2 $\frac{1}{8}$ " high, 6 $\frac{1}{4}$ " wide and 10" long. It is small enough to fit into a brief case, suit case, automobile glove compartment, or the top drawer of a desk. It transcribes on records at 33-1/3 rpm, playable on any phonograph oper-



ating at that speed, as well as the company's transcribing units. The casing of the 200 is lightweight aluminum divided in half to provide two-tone color combinations as well as solid colors.

Circle No. 137 on Inquiry Card—Page 17



L. A. B. Corp., Skaneateles, N. Y., has introduced a new "Easy-Shift" **vertical drafting board** designed to reduce fatigue. The vertical feature prevents dirt and dust from collecting on drawings, and eliminates smudging. The board is available in two models, one with fixed board angle of 15° from vertical and the other adjustable through an arc of 85° from vertical. Both models have an up and down adjustment of 20", permitting draftsmen to work seated, or standing. The frame of the board is made of tubular steel, with gray iron castings for inter-connecting members.

Circle No. 138 on Inquiry Card—Page 17

Whatever your business may be... you can save money with stapling

Below you see five of the vast number of businesses which report savings with Bostitch stapling. In shipping, Bostitch provides quick, easy carton closures—on seams, tops and bottoms—that actually strengthen the cartons. In production, everything from paper to sheet metal is fastened with Bostitch equipment—

speeding output, cutting costs. A Bostitch Economy Man will be glad to help with your fastening problems. He's one of 350 trained fastening specialists working out of 123 cities in the U. S. and Canada. Over 800 different models of Bostitch staplers use 200 types of staples, tailored to the job.



These steel freezer cabinets, once spot-welded, are now wire stitched. "Bostitch method trims fastening costs by 75%."



Using Bostitch Autoclench stapler, this man says he seals boxes "five times faster" than he can with glue. Saving "over 50%."



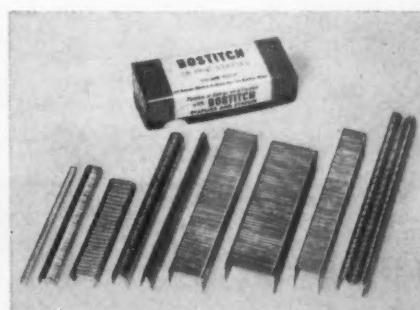
Air freight bills stapled to corrugated containers with new-type Bostitch tacker "hold better than with tape at 1/10th the cost."



Electrically operated Bostitch stapler bags hardware parts twice as fast as hand stapler. "Savings in labor alone, 50%."



"Twice as many boxes can be stapled in an hour, with only two thirds as much manpower." Staplers also take up less floor space.



For greatest savings, use only genuine Bostitch staples in Bostitch machines. They're precision-made to work together!

HERE'S HOW TO CUT COSTS in your business; attach this coupon to your business letterhead and mail to us today.

BOSTITCH, Inc.
730 Mechanic Street, Westerly, R. I.

Your proposition interests me—show me how stapling can save money for our business.

I'm particularly interested in the following applications (please check):

Fasten it better and faster with

BOSTITCH®
STAPLERS AND STAPLES

For More Information Circle No. 445 on Inquiry Card—Page 17
OCTOBER, 1956

HI-SPEED PRODUCTION FASTENING

- stapling vs. riveting
- stapling vs. spot welding
- stapling vs. screws or bolts
- stapling vs. glue or cement
- stapling vs. tape
- stapling vs. tacks or nails
- stapling vs. solder
- stapling vs. wire or string

PACKAGING AND CARDING

- sealing bags (cloth, paper or plastic)

- mounting products on display cards
- fastening items to individual cards

SHIPPING ROOM ECONOMIES

- preparing cartons for filling
- sealing filled cartons
- lining or padding crates
- applying shipping bills or tags

BUILDING APPLICATIONS

- applying asphalt roofing

- laying underfelt
- installing ceiling tile
- applying insulation
- installing low-voltage wiring
- applying shake shingle siding

OFFICE EFFICIENCIES

- filing
- routing
- posting
- binding folders and reports
- preparing advertising dummies

Name _____

Position _____

Company _____

Address _____

City _____

Zone _____ State _____

For More Information Circle No. 446 on Inquiry Card—Page 17→
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TOMORROW:

A standard motor that can

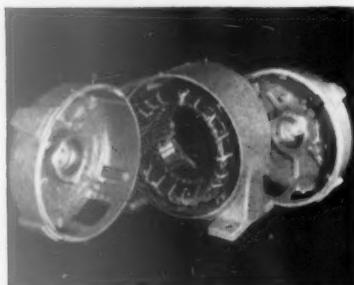
The new **Life-Line "A"** is another step closer

One of the principal causes of motor failure today is overloading. Right now Westinghouse is working on motor designs that will someday result in a motor that can survive any overload.

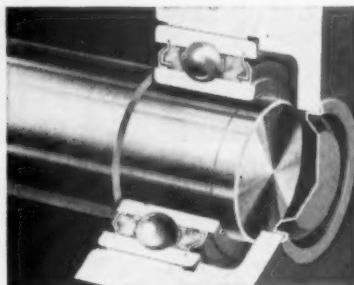
This picture shows a 15-hp Life-Line "A" motor pulling a quarter of a million pounds of locomotive on New York Central tracks near Buffalo. It's simply a dramatic way of showing the progress Westinghouse has made toward better overload protection. Improved insulation, frame construction and bearing design give the Life-Line "A" better protection against overloads than ever before. It's industry's closest approach to a standard motor that can withstand any overload condition.

Your Westinghouse sales engineer is ready to tell you about many other reasons why the Westinghouse Life-Line "A" is industry's most advanced and preferred motor. Call him today.

J-21925



New exclusive Bondite* impregnating varnish, partner to new Bondar* and Mylar† insulations, guarantees complete resistance to the heating effects of heavy overloads as well as motor contaminations.



Exclusive Life-Line "A" pre-lubricated bearing features a new 4-way seal and completely excludes the three main causes of bearing failure: (1) contamination, (2) overgreasing, (3) wrong grease.

*Trade-Mark †Du Pont Registered Trade-Mark

WATCH WESTINGHOUSE!

WHERE BIG THINGS ARE HAPPENING TODAY!

stand any overload?



Motor and Control -
Standard ratings now
available for immediate delivery
from warehouses coast-to-coast!

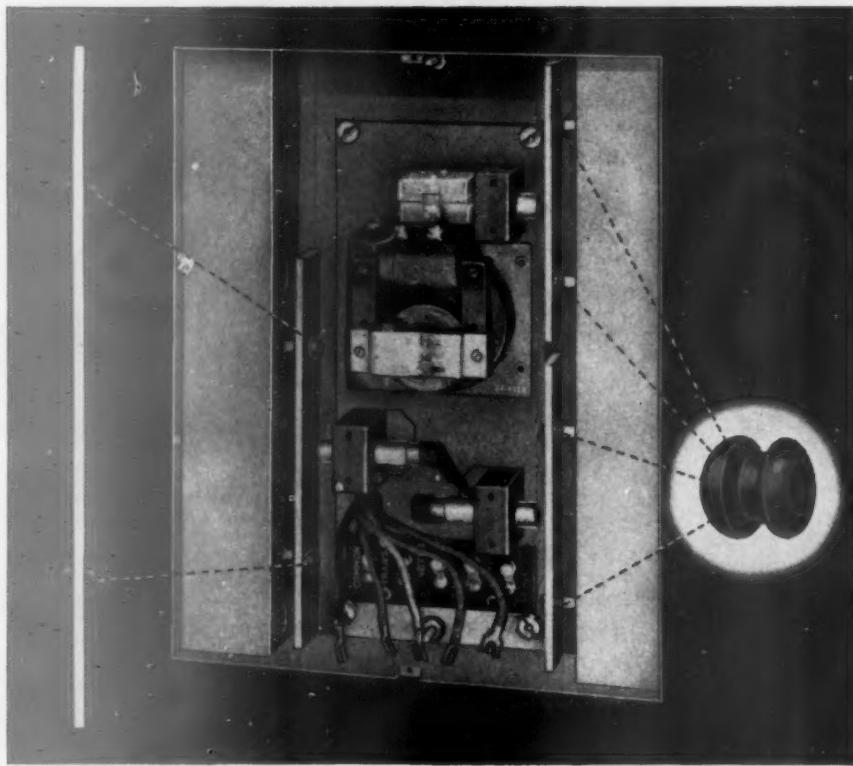


Photo courtesy Nutone, Inc., Cincinnati

Engineers Develop New Use for Rubber

Rubber, normally used to reduce vibration,
now can be made to increase vibration

Here rubber grommets serve as mountings for the tone bars in Nutone Door Chimes. To obtain maximum tone quality and resonance required of these musical chimes, the grommets must vibrate compatibly with the tone bars . . . a truly *unusual assignment* for rubber.

Only by skillful compounding can rubber be diverted from its normal dampening characteristic and be given this vibrant quality. The slightest deadening effect would destroy the rich tones and kill the tone hang.

The successful development of this lively, age-resistant rubber

stock typifies the complete engineering and laboratory—as well as manufacturing—skill available at Continental. Whenever you need “engineered rubber parts”—molded or extruded, natural or synthetic—call Continental, Specialists since 1903.

Engineering catalog.

In addition to custom-made parts, Continental offers an extensive line of standard grommets, bushings, bumpers, rings and extruded shapes. Hundreds of these are shown in the No. 100 Engineering Catalog. Send for a copy or refer to it in Sweet's Catalog for Product Designers.

Another achievement in RUBBER
engineered by **CONTINENTAL**

CONTINENTAL RUBBER WORKS • 1983 LIBERTY ST. • ERIE 6 • PENNSYLVANIA

For More Information Circle No. 447 on Inquiry Card—Page 17

office
equipment



An automatic feeder that feeds single-set carbon forms into a typewriter or billing machine is being marketed by **American Business Systems, Philadelphia**. Called the Snapset Automatic Feeder, it can be quickly clamped to any desk and used with any machine. The feeder has an adjustable magazine to handle sets from two to 20 parts, up to 9" wide and 14¾" long. It aligns the delivery of the form with the platen of the machine in use. Pressing a lever delivers the forms, one at a time, to the machine.

Circle No. 139 on Inquiry Card—Page 17

The Hamilton Mfg. Corp., Columbus, Ind., is introducing a completely new, deluxe series to its line of COSCO office chairs. Although resembling the original lines of executive, secretarial, conference room and general seating models of COSCO, the deluxe Director Series models are more generously proportioned, luxuriously cushioned, and styled in the popular square tubing. The series consists of an executive chair, a secretarial chair, a conference armchair and three general chairs. The series are cushioned with

(Please turn to page 382)



like special service?

That's what you'll get at Crucible—no matter how big or small your special steel needs may be.

Crucible warehouses are conveniently located all across the country—to supply the widest assortment of special steels, when you need them.

Deliveries are dependable, service something special—because Crucible is *big enough to serve you, small enough to want to.*

Stocks maintained of:

Rex High Speed Steel . . . ALL grades of Tool Steel (including Die Casting Die and Plastic Mold Steel, Drill Rod, Tool Bits, and Hollow Tool Steel Bars) . . . Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes) . . . Max-el, HY-Tuf, AISI Alloy . . . Onyx Spring, Hollow Drill Steel and other special purpose steels.

CRUCIBLE

WAREHOUSE SERVICE

Crucible Steel Company of America

General Sales Offices, The Oliver Building, Mellon Square, Pittsburgh 22, Pa. Branch Offices and Warehouses: Atlanta • Baltimore • Boston • Buffalo • Charlotte • Chicago • Cincinnati • Cleveland • Dallas • Dayton • Denver • Detroit • Harrison • Indianapolis • Los Angeles • Milwaukee • New Haven • New York • Philadelphia • Pittsburgh • Portland, Ore. • Providence • Rockford • San Francisco • Seattle • Springfield, Mass. • St. Louis • St. Paul • Syracuse • Toronto, Ont.

For More Information Circle No. 448 on Inquiry Card—Page 17

*They're now available
from stock in new
standard 18" lengths!*



ACE

LONGBOY DRILLS

Been buying costly "specials" for deep hole drilling operations? Then you'll be glad to know that Ace Longboy Drills are now available from stock in a wide range of standard sizes and in both 12" and 18" lengths! What's more, their polished flutes are precision ground in top quality pre-hardened high speed steel to provide a finer finish, keener cutting edges, and longer drill life.

Call your local Ace Drill Distributor today!

NEW CATALOG covers the entire line of Ace "Ground-from-the-Solid" High Speed Steel and Carbide Drills, Reamers, Drill Blanks and Special Drills. Send for it today!



ACE DRILL

ADRIAN, MICHIGAN

ORIGINATORS OF "GROUND-FROM-THE-SOLID" DRILLS

For More Information Circle No. 449
on Inquiry Card—Page 17

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office equipment

(Continued from page 380)



foam rubber on the backrests and armrests, as well as the seat. The general chairs are available with padded or ladder backrests. Both

the executive and secretarial chairs are adjustable for individual comfort.

Circle No. 140 on Inquiry Card—Page 17

NEW LITERATURE

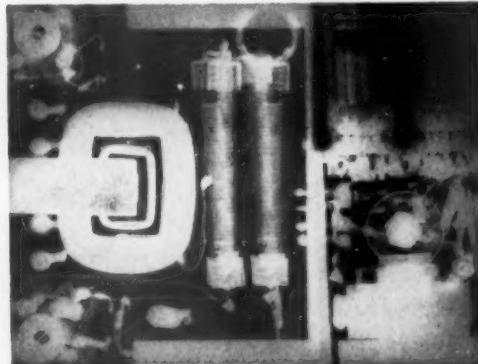
A new illustrated booklet called "There's Safety in Numbers", issued by **Cummins - Chicago Corp., Chicago**, answers the question of how to make sure every shipment is billed. It describes the Cummins order control system which automatically provides a consecutive number, registers it in proper sequence of shipment and perforates up to 20 copies each time the machine is actuated. This means that the shipping order, invoice and supporting papers all have the same date and control number.

Circle No. 141 on Inquiry Card—Page 17

A booklet describing its line of steel posture, swivel, side and arm chairs is available from **Remington Rand, division of Sperry Rand Corp., New York**.

Circle No. 142 on Inquiry Card—Page 17

how to get more volts per pound at high altitudes



PROBLEM: Design a regulated high-voltage dc power supply for operation at high altitudes. Specifications:

- Input voltage—400 cps \pm 10% • Output—dual: 4 KV at 2.5 ma; 8 KV at .3 ma • Regulation—no load to full load within 1% • 105 cubic inches maximum • Light as possible.

SOLUTION: We designed a vacuum tube regulator circuit, with the regulator tubes kept at low voltage. Result: The tubes could be mounted externally—for easy replacement.

For compactness and to protect high-voltage components against the hazards of moisture or rarefied air, we cast the rest of the unit in epoxy resin.

The assembly weighs only 6½ lbs., occupies 96 cu. in., plus terminals.

This sort of engineering can be at your service too. When you need electronic assemblies—by hundreds or thousands—straightforward or special design—make use of our production and design experience and facilities.

CALEDONIA ELECTRONICS AND TRANSFORMER CORP.

Dept. P-10, CALEDONIA, NEW YORK

In Canada: Hackbusch Electronics, Ltd., 23 Primrose Ave., Toronto 4

For More Information Circle No. 450 on Inquiry Card—Page 17

PURCHASING

New protection for hard-to-ship products!



SCIENTIFICALLY TAILORED
FOR YOUR

- chemicals
- paints
- motor oil
- grease
- kerosene
- liquid detergents
- printing inks
- printing glues
- adhesives

and many other non-food products

TAILOR-MADE PACKAGE SERVICE

OCTOBER, 1956

For More Information Circle No. 451 on Inquiry Card—Page 17

Continental's *Perma-LINED* steel containers

No matter how difficult your product is to ship, it will travel safe and sure in a Continental Perma-Lined steel container.

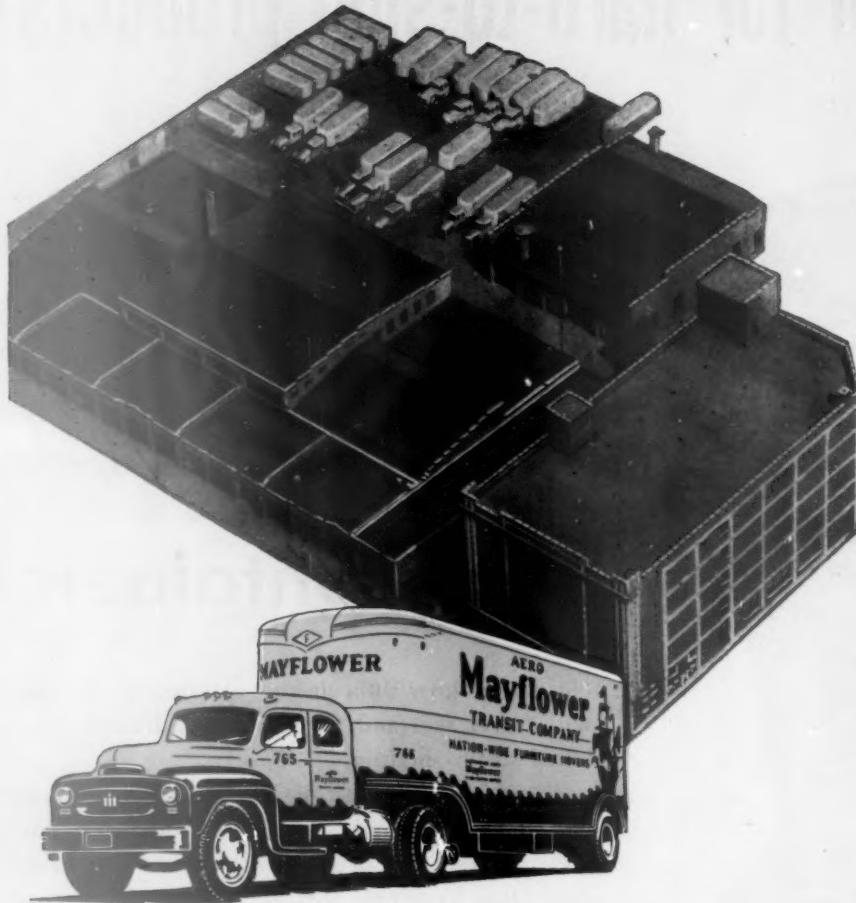
Perma-Linings are airless hot-sprayed in the formed container, then fast-baked to a rock-hard finish. Every square-inch of inner surface gets a uniform coat of tough enamel—even at side-and bottom-seams. That's because Continental's airless hot-spray process works exclusively with heat and hydraulic pressure . . . eliminates faulty spray patterns caused by compressed air.

Chances are there is already a Perma-Lined container tailor-made for your individual product. If yours is a "problem product", however, we're ready, willing and able to develop a new Perma-Lining to fit it.

There's a wide variety of Perma-Lined containers waiting to go to work for you: open-top lug cover pails (sizes 2-to 12-gal.) and our 5-gal. tight head pail. For the finest in product protection, exciting lithography and tailor-made service, look into Continental's Perma-Lined steel containers now.

 **CONTINENTAL**
CAN COMPANY

Eastern Division: 100 E. 42nd St., New York 17
Central Division: 135 So. La Salle St., Chicago 3
Pacific Division: Russ Building, San Francisco 4



office equipment

A booklet describing the Aristocrat steel desk line is available from **Remington Rand**, division of **Sperry Rand Corp.**, New York.

Circle No. 143 on Inquiry Card—Page 17

A completely new manual entitled "Offset Reproduction and the Davidson Dual-Lith" is available from the **Davidson Corp.**, Brooklyn. The manual briefly describes the evolution of printing and the practices and ideas applicable to the Davidson machines.

Circle No. 144 on Inquiry Card—Page 17

Electronic computing — Two folders. TM-939 tells of versatility of random-access storage on magnetic drums, permitting instant reference to as many as 1,000,000 characters of business data with the Univac File-Computer. Booklet EL-280, "Automatic Routines for Commercial Installations", tells of system for automatic programming of Univac electronic computing systems. Publication paper delivered by Mary K. Hawes, supervisor of commercial programming for the Univac Division, before national meeting of Association for Computing Machinery. Both available from **Remington Rand Division, Sperry Rand Corp.**, 315 Fourth Ave., New York 10, N. Y.

Circle No. 145 on Inquiry Card—Page 17

A brochure describing Acme Visible photo panels and xerography is being offered by **The Haloid Co.**, Rochester, N. Y. It illustrates and explains the use of xerography in preparing and altering lists for Acme Visible photo panels.

Circle No. 146 on Inquiry Card—Page 17

A booklet on acoustical materials for commercial and institutional use has been published by the **Armstrong Cork Co.**, Lan-

(Please turn to page 388)

for Responsible Responsibility CHOOSE MAYFLOWER LONG-DISTANCE MOVING SERVICE

► By "responsible responsibility" we mean: "We stand back of our service . . . we are prepared and able to make good on our promises." In long-distance moving it means a company that assumes *complete* and *undivided* responsibility for every move . . . and for every detail of every move. It means a company that is well-established . . . that is financially responsible. That's the kind of responsibility you can rely on from the Aero Mayflower Transit Co., Inc. . . . provider of America's Finest Long-Distance Moving Service since 1929 . . . the first carrier to receive nation-wide operating rights from the ICC . . . and the owner of the world's largest fleet of moving equipment.

AERO MAYFLOWER TRANSIT COMPANY, INC. • INDIANAPOLIS

Mayflower Service is available through selected warehouse agents throughout the United States and Canada. Your local Mayflower agent is listed under Moving in the classified section of your telephone directory.



America's Finest Long-Distance Moving Service
For More Information Circle No. 452 on Inquiry Card—Page 17

"We Have Found a Difference in Condenser Tubes"

"Exceptional size uniformity in Summerill Tubing led to major cuts in our production costs."



L. E. LOOS
Manager of Purchases
The Vilter Manufacturing Co.

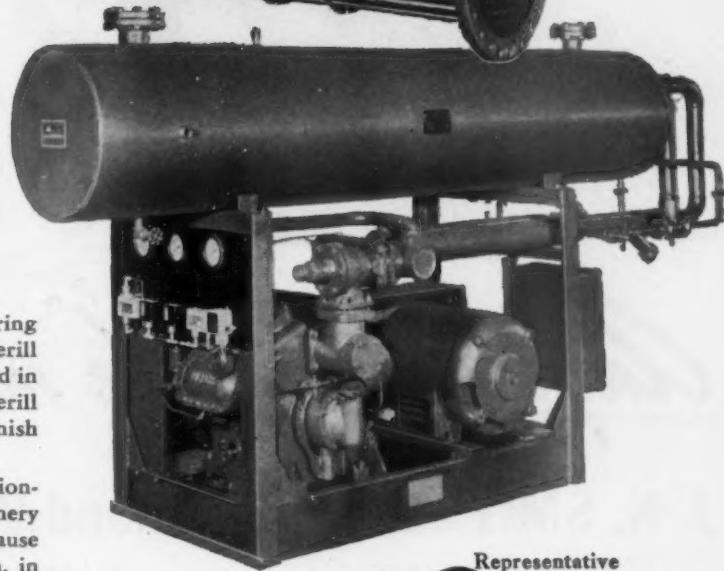
"As Manager of Purchases for The Vilter Manufacturing Company, I am happy to state that we find Summerill Tubing more uniform in diameter, in wall thickness and in length than any tube with which we are familiar. Summerill also consistently comes to us with a high quality finish and exceptional appearance."

"Manufacturing refrigeration equipment, air conditioning systems, heat exchangers and ice producing machinery naturally makes tubing a major item with us. And because of this importance, our Engineering and Design men, in conjunction with Production and Purchasing, spend unlimited time specifying, selecting and testing tubing."

"We build thousands of tube bundles similar to the one illustrated above, and using uniform Summerill Tubing means there is no need to selectively ream and re-ream each hole in the tube sheet to fit an individual tube. A Summerill Tube is also seated with one rolling operation and a single size of tool. There is added significance here if you count the 136 holes in this typical sheet. Repeating any of the reaming or seating passes immediately multiplies into a serious cost problem."

"Summerill Tubing is our recommendation because we have found a difference in the degree of uniformity in condenser tubes."

L. E. LOOS



Representative
Vilter UNI-CHILLER

There is little we would add to Mr. Loos' report on the dollar-and-cents-importance of specifying quality steel tubing by the name . . . SUMMERILL. All Summerill Tubing is produced under the meticulous supervision of our metallurgical laboratories.

There is a complete range of sizes of Summerill carbon and alloy tubing to meet your most demanding specifications. Be the person responsible for a step that can effect major cuts in production costs for your firm. Write for complete information on Summerill Seamless Steel Tubing . . . today.



Tubing Company Division-Columbia Steel & Shafting Co.

PITTSBURGH 30, PA. DEPT. NO. 2-13

District Offices: Buffalo • Chattanooga • Cleveland • Dayton • Hartford • Philadelphia • Pittsburgh • Milwaukee • Chicago

For More Information Circle No. 453 on Inquiry Card—Page 17



Anywhere on the map...

J. K. SMIT custom Diamond Wheels are designed to fit your grinding needs

You tell us your grinding problems. J. K. Smit engineers, located in all strategic cities, are trained and able to help you solve your job requirements.

We are proud of our reputation for integrity and ability . . .
Our products reflect this reputation.

Send for your copy of our latest Diamond Wheel Catalog or contact us direct for further information



J. K. SMIT & SONS, INC.
HOME OFFICE AND PLANT
MURRAY HILL
NEW JERSEY

Additional plants in London, Paris, Amsterdam, and Tokyo, Japan

office
equipment

(Continued from page 384)

caster, Pa. Entitled "Quiet At Work", it outlines the various advantages of different types of acoustical materials. It includes information on economy, beauty, fire-safety and maintenance.

Circle No. 147 on Inquiry Card—Page 17

Key punch adder system—New folder describes how key punch adder system gives immediate verification and increases key punching speed. System cables together a Monroe 10-key adding machine and IBM key punch models 024, 026, 031, and 016. Available from **Systematics Inc.**, 30 Hermosa Ave., Hermosa Beach, Calif.

Circle No. 148 on Inquiry Card—Page 17

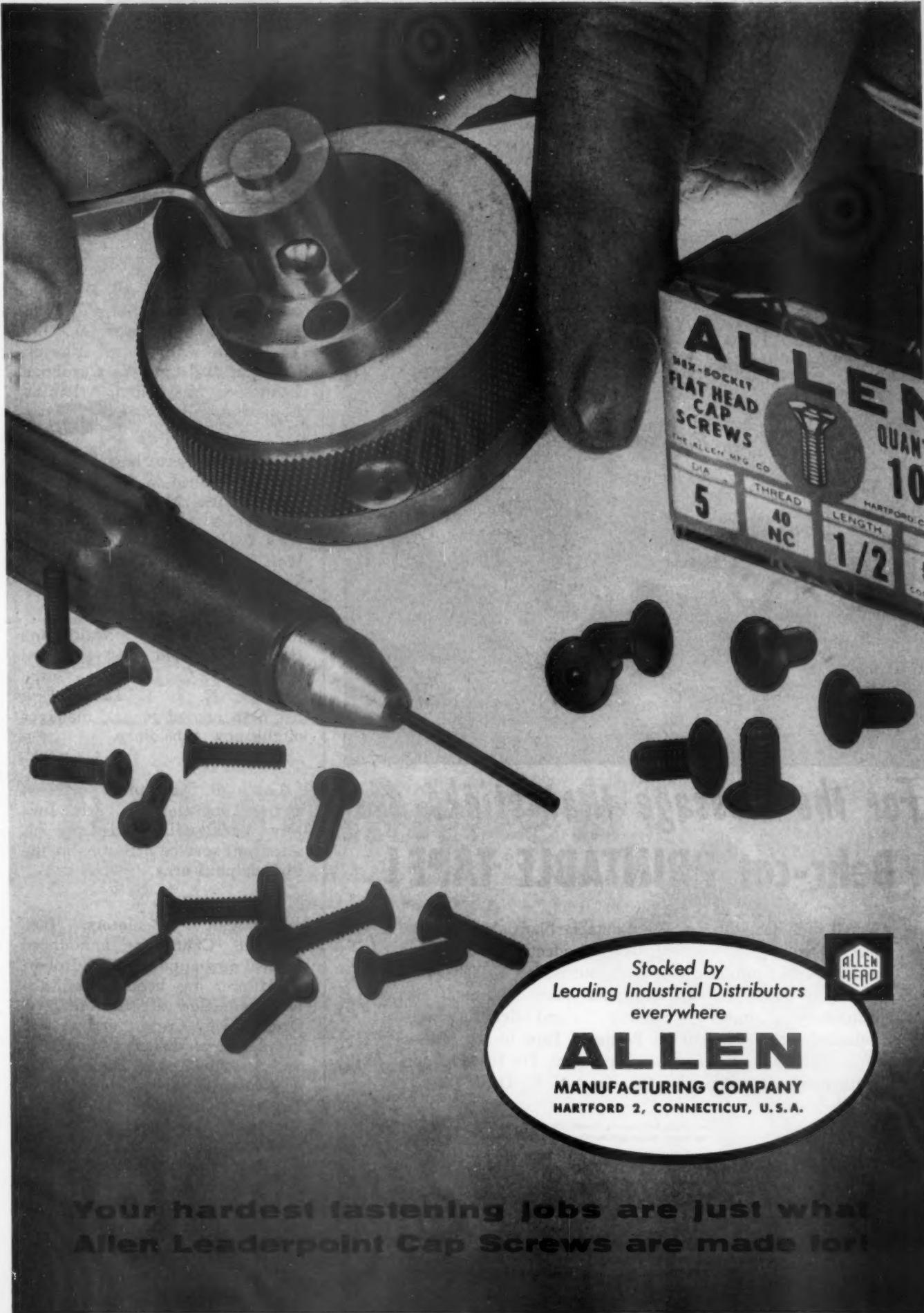
The important part that Remington Rand accounting machines play in the efficient operation of the Perry County Memorial Hospital is told in a new booklet published by **Remington Rand, division of Sperry Rand Corp.**, New York. It is booklet AB-1045.

Circle No. 149 on Inquiry Card—Page 17

The Recordplate Co., 16 E. Holly St., Pasadena 1, Calif., has issued its new catalog, No. 10, "Ringbooks of Tomorrow". This is its 10th anniversary edition. It covers the complete Recordplate line of loose-leaf visible equipment. It is available on request.

Circle No. 500 on Inquiry Card—Page 17

A case history brochure on the use of a Rectigraph **photocopying machine** by General Mills Inc. is available from The Haloid Co., Rochester, N. Y. The booklet illustrates and describes how General Mills speeds paperwork, eliminates error, etc. on reports of all kinds, organization charts, drawings, etc. Copies are available from **M. E. Harris, Dept. GM-1, The Haloid Co., Rochester 3, N. Y.** Circle No. 501 on Inquiry Card—Page 17



Stocked by
Leading Industrial Distributors
everywhere



ALLEN
MANUFACTURING COMPANY
HARTFORD 2, CONNECTICUT, U.S.A.

Your hardest fastening jobs are just what
Allen Leaderpoint Cap Screws are made for!

For More Information Circle No. 455 on Inquiry Card—Page 17

Behr-cat tapes serve industry everywhere!



For the message that sticks use **Behr-cat® PRINTABLE TAPE!**

You'll find Behr-cat No. 196 Printable Flatback Tape perfect for packaging, marking, labeling, identifying or any of a dozen other printable tape applications. It's available in a variety of widths in both white and yellow . . . takes inks beautifully . . . unwinds smoothly . . . and offers fine, well-balanced tack. Put Behr-cat Printable Tape to the test on your next sealing or identifying operation. For further information write Behr-Manning Co., Troy, N. Y., Dept. PU-10.

In Canada: Behr-Manning (Canada) Ltd., Brantford.
For Export: Norton Behr-Manning Overseas Inc., New Rochelle, N. Y., U. S. A.



BEHR-MANNING Co.
a division of
NORTON COMPANY



BEHR-MANNING PRODUCTS: Coated Abrasives • Sharpening Stones • Behr-cat Tapes
NORTON PRODUCTS: Abrasives • Grinding Wheels • Grinding Machines • Refractories

T-6

For More Information Circle No. 456 on Inquiry Card—Page 17

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office
equipment

Personnel Changes

Thomas Parkes has been named southern district manager of the **Eberhard Faber Pencil Co., New York**. He will cover Florida, Georgia, Alabama, the Carolinas, Tennessee, Mississippi, Arkansas, Louisiana and Texas.

J. G. Romero has been appointed general sales manager of the **Business Machines Division, Electronics Corp., of America, New York**. He was formerly with both Friden Calculating Machine Co. and the Underwood Corp.

Addressograph - Multigraph Corp., Cleveland, has acquired the Ralph C. Coxhead Corp., Newark, N. J. L. Deane Hall has been named general manager of the new subsidiary.

Louis P. Merlino, northeast district manager of **Facit, Inc., New York**, will concentrate his sales and service activities in the Philadelphia area.

Marchant Calculators, Inc., Oakland, Calif., has announced several new appointments. Robert G. Hunter has been named district manager of the Medford, Ore., office. Cary Farrow, Jr., takes over as district manager in San Antonio, Texas. The new district manager in Rockford, Ill., is Eugene Talbot. The Minneapolis district manager is now Calvin J. Floerke. Beeler C. Eskridge is district manager in Raleigh, N. C. In Durham, N. C., the new district manager is Thomas O. Talton. And, Joseph A. Seabrooke has been named district manager for the new El Centro, Calif., office.

PURCHASING



When shipping was slow how the boss used to roar
He'd shatter the windows and splinter the door



Now he's patched up his shipping, he's found out at last
That RAILWAY EXPRESS is dependably fast!

Frank Ouen

The big difference is

Whether you're sending or receiving,
whether your shipment is big or small, whether
you're shipping here or abroad—always
specify Railway Express. You'll find it makes
the big difference in speed, economy, and
safe, sure delivery. And now you can
make fast, economical shipments via
Railway Express Agency's new international
air and surface connections. It's the complete
shipping service, free enterprise at its best.



...safe, swift, sure

Railway Express International Service now includes affiliations with: SEABOARD & WESTERN (and connecting carriers)
TACA . . . TAN AIRLINES • also SCHENKER & CO. and the AMERICAN EXPRESS COMPANY foreign connections.

For More Information Circle No. 457 on Inquiry Card—Page 17



now... cut work-glove costs up to 45%

Now you can cut costs of the work gloves you buy! Here's proof: Work gloves reinforced with 50% Du Pont nylon in the warp* were job-tested at an auto-assembly plant on a rugged filing operation. They lasted 2.2 times longer than the ordinary cotton Canton flannel gloves normally used on the job. Result: a cost reduction of 45%! You, too, can reduce your replacement costs. Order nylon-reinforced work gloves when you buy. E. I. du Pont de Nemours & Co. (Inc.), Textile Fibers Department, Wilmington 98, Delaware. *Higher percentages of nylon may give even greater durability, as indicated by laboratory data.



REG. U.S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

For More Information Circle No. 458 on Inquiry Card—Page 17

Examples of WOLVERINE TUBEMANSHIP* —In Action!

* Tubemanship is Wolverine's name for a special ingredient that goes into every Wolverine product. It consists of experience, rigid quality-control, sound engineering and constant research. It is your guarantee of tubing and services that will meet every expectation. For complete information write for copies of Wolverine Commercial and Condenser Tube Catalogs.

PLUMBERS' BRASS

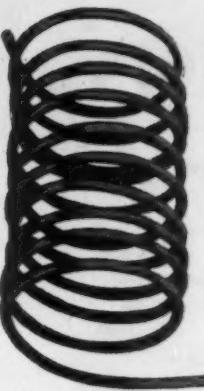


Your reputation for top quality, plumbers' tubular brass goods is enhanced when your products are manufactured from top quality tubing.

Wolverine's years of tubing experience, its rigid quality control and its adherence to customer specifications have made it a leading producer of 70-30 yellow brass tube.

Wolverine yellow brass tube is available in a wide range of diameters and wall thicknesses. Remember, too, that Wolverine's know-how and fabrication facilities can help save you time and money in the production of tubular-shaped parts.

INSTRUMENTATION



Looking for rigidly quality-controlled, small-diameter tubing—the kind that can bring a new degree of accuracy to the manufacturing of gauges, instruments, pressure control and recording equipment?

Wolverine can supply exactly the tube you need from a wide range of sizes and alloys in both copper and aluminum.

Wolverine has had years of experience in the production of this type of tubing—has, for example, supplied the refrigeration and air conditioning industry with millions of feet of Wolverine Capilator®—the plug drawn capillary tube for precision metering of liquids, gases and air.

Where utmost accuracy and cleanliness is demanded Wolverine is equipped to wash, burr, and individually flow-test small diameter tubing to customer specifications.

ELECTRICAL



To manufacturers supplying the electric and power markets, Wolverine Tube is a prime source of tubing and tubular shaped products.

Wolverine products for the electrical industry include finned and prime surface condenser tube (for transformer coolers and other applications), and copper and aluminum commercial tube in a wide range of sizes and alloys for such components as connectors, tubular switch gear and control equipment.

Wolverine also produces time and material saving extruded aluminum shapes. If your requirements call for fabrication, Wolverine is equipped to fin, spin, bend, coil, flare, expand, etc.

DIVISIONS OF
CALUMET & HECLA, INC.

CALUMET DIVISION
WOLVERINE TUBE DIVISION
CANADA VULCANIZER
& EQUIPMENT CO., LTD.
FOREST INDUSTRIES DIVISION
GOODMAN LUMBER CO.



WOLVERINE TUBE

Division of Calumet & Hecla, Inc.

1427 Central Ave., Detroit 9, Mich.

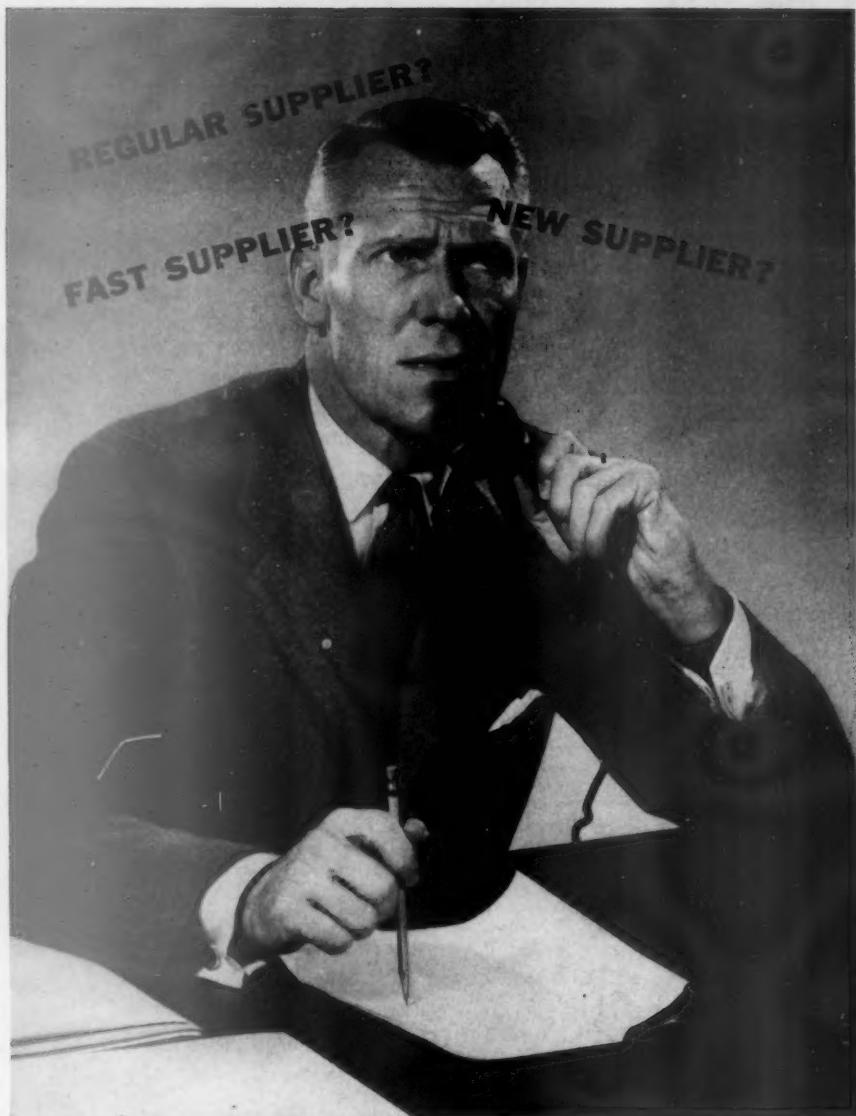
Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

\$407

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES

EXPORT DEPARTMENT, 13 EAST 46TH STREET, NEW YORK 16, N.Y.

For More Information Circle No. 459 on Inquiry Card—Page 17



When the PRESSURE is on—

for equipment or supplies — reach for the Yellow Pages of your telephone directory.

With a turn of a page, this handy buying guide will help you find the kind of product or service you need.

Ads with descriptive information — trade-mark listings — make it easy for you to find addresses and telephone numbers of suppliers who can do the job. Do as most purchasing agents do . . . for fast action look in the Yellow Pages.

AMERICA'S BUYING GUIDE
FOR OVER 60 YEARS



For More Information Circle No. 460 on Inquiry Card—Page 17

Buying For An "Office Production Line"

(Continued from page 115)

them without impairing efficiency or sacrificing quality.

Printed forms are subjected to constant analysis. Balancing requirements of usage and retention of certain forms against the permanence and durability of the paper and ink used in them has made it possible to save substantial sums of money. John Hancock's paper buyers have kept themselves fully informed on progress in paper-making techniques and quality control. This knowledge, coupled with the close co-operation they have had from paper mill technicians has enabled them to set up specific specifications for quality, grade and weight—no more, and definitely no less—than are needed for a particular job.

Great Savings Realized

In one case, the company had been using a premium grade of paper without realizing it. In the course of analysis, it was found that the name of the paper required was similar to one with more exacting specifications that was used in a different application. The higher priced item had been bought for both jobs. Without sacrifice of quality needed in the application, a switch was made to a different grade of paper. More than \$5,400 was saved annually on this one item.

In another case, a buyer recommended selling a group of used machines instead of trading them in, which was the usual practice. Tested over a period of several months, the new procedure showed a potential gain of hundreds of dollars a year for John Hancock.

These savings, while not large in themselves, are representative of several hundred similar ones that total very large sums of money every year. Just as important, they reflect a creative attitude toward cost reduction on the part of purchasing personnel.

Basic to the progress purchas-
(Please turn to page 396)

For More Information Circle No. 436
on Inquiry Card—Page 17→



A good combination...for an argument

Laminated plastics . . . a combination of properties that speaks for itself!

Many industrial applications require materials that can deliver more than one property and can perform more than one function. Such a material is Synthane laminated plastic. This widely used basic material satisfies such diverse property requirements as good tensile, compressive and flexural strengths, low moisture absorption, low dielectric constant and low power factor, light weight and easy machinability. Various grades of Synthane are available to the designer in order to provide him with just the right combination of properties according to the mechanical, electrical and chemical requirements of his application.



This insulation plate made of Synthane has to take the toughest kinds of outdoor punishment. Used in heavy-duty generators for bulldozers and tractors, it must battle all kinds of weather, road dust, oils, greases, and vibrations. In addition to meeting these tough service conditions, Synthane also possesses the necessary light weight, mechanical and dielectric strengths, good machining properties, and the ability to be post-formed to the desired shape.



A wide choice of combined properties! Synthane offers over 30 individual grades in sheets, rods, tubes, moldings, and completely fabricated parts. Send for free illustrated catalog today.



DIELECTRIC STRENGTH



LIGHT WEIGHT



WEAR RESISTANCE



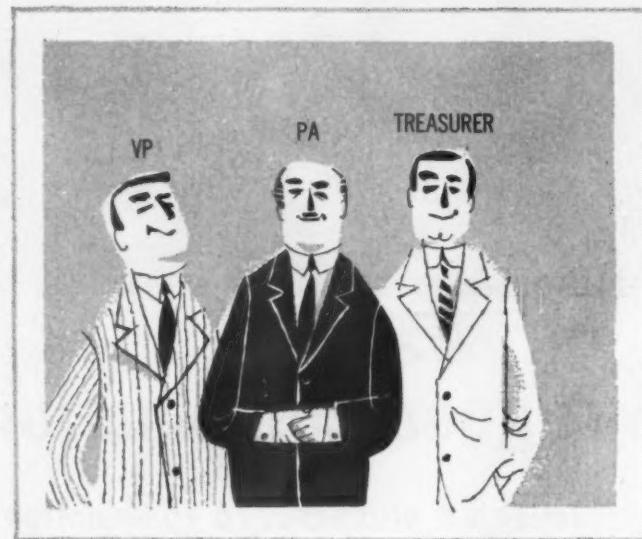
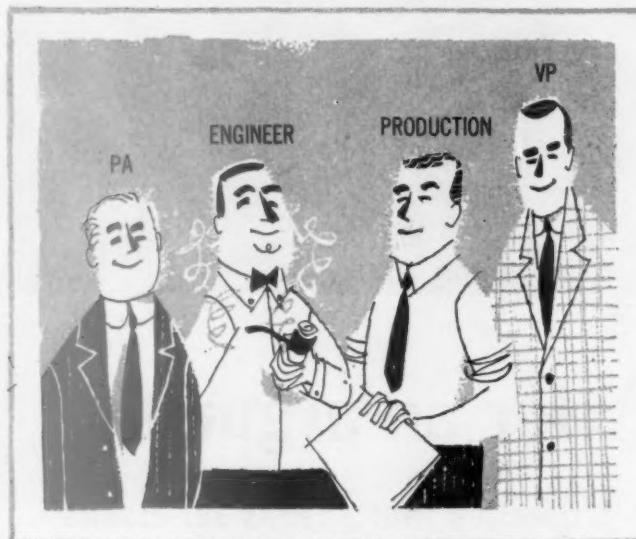
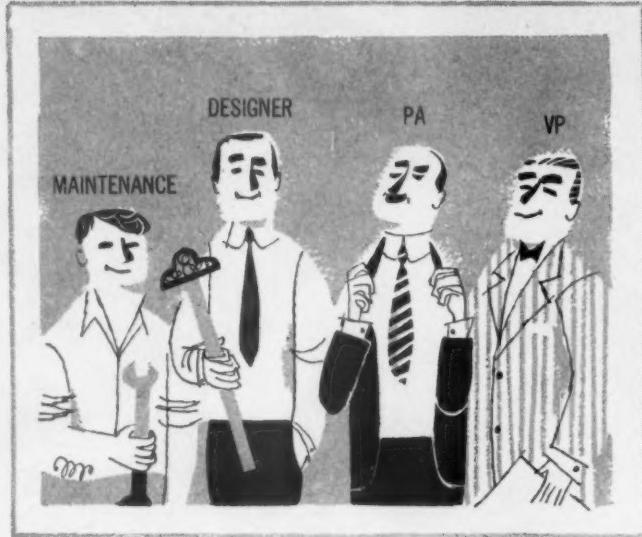
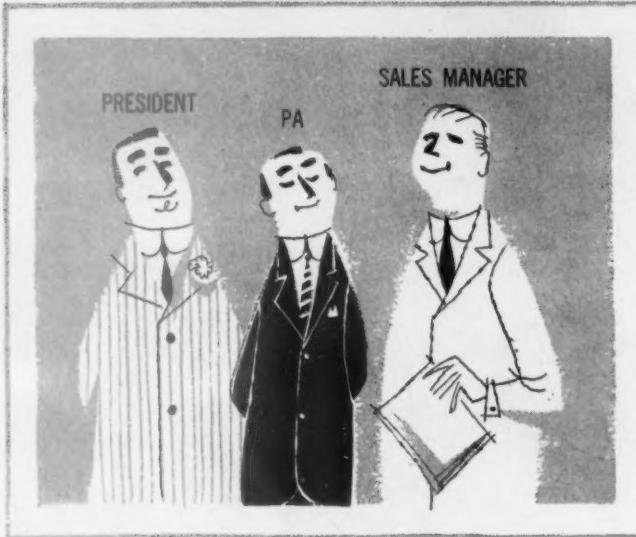
EASILY MACHINED

SYNTHANE
S

SYNTHANE CORPORATION, 7 RIVER ROAD, OAKS, PA.

For More Information Circle No. 461 on Inquiry Card—Page 17

THE PA'S ALWAYS IN THE PICTURE



ON THE PLANT BUYING TEAM!

It's widely recognized in industry today that many men have buying influence in large companies. But *one man* is always in on the buying decision — the Purchasing Agent.

That's why leading industrial advertisers always make sure — no matter what other media they use — that PURCHASING is a basic

magazine on their industrial advertising schedules.

Since 1915, PURCHASING has been the PA's own magazine — the *one* business publication he reads regularly, the *one* magazine he finds most useful. PURCHASING gives you the largest available coverage of industrial purchasing executives. Shouldn't you, too, be in PURCHASING?

If you sell an industrial product . . . put PURCHASING power behind it!

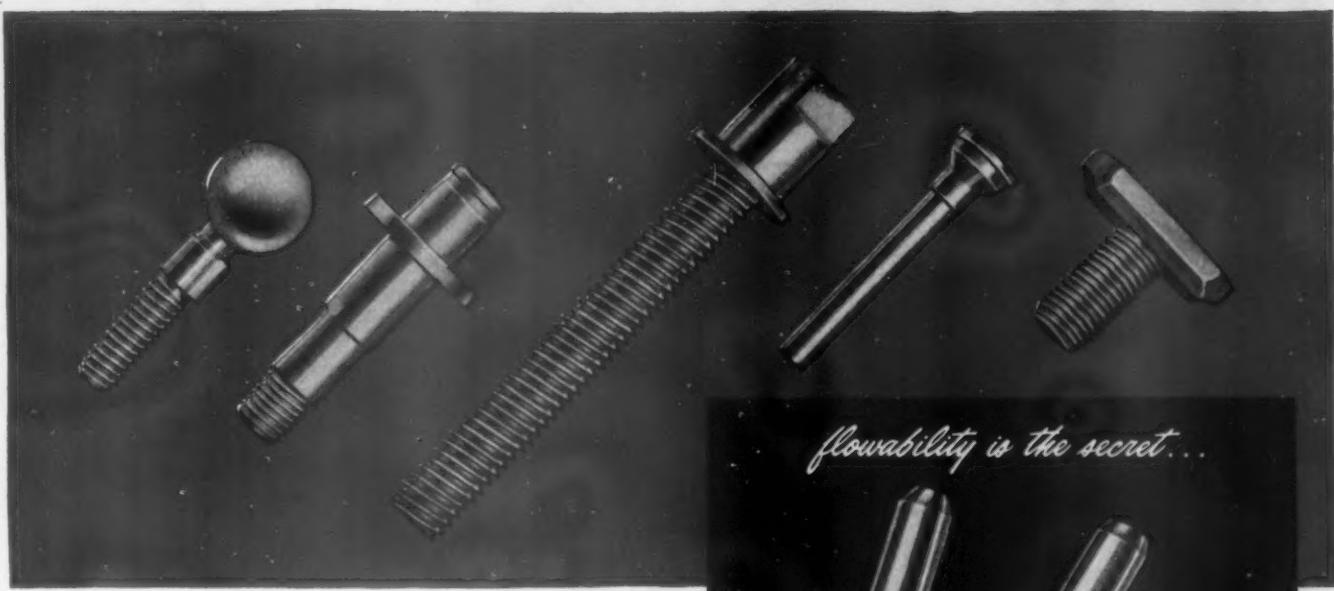
PURCHASING MAGAZINE

205 East 42nd Street, New York 17, N. Y.

A basic magazine on any industrial advertising schedule!

A CONOVER-MAST PUBLICATION





flowability is the secret...



Pheoll MANUFACTURING CO. saves customers dollars by cold heading parts.

A recognized leader in the cold heading process field, Pheoll Manufacturing Company, Chicago, Illinois, is constantly striving to simplify and standardize fasteners for their customers. Working closely with Keystone Steel & Wire Company, Pheoll Fastener Redesign Department has developed cold heading processes that in many instances have saved 20% to 50% in time and money over other methods of manufacture.

This is another example of how alert manufacturers, like Pheoll, are cutting costs, eliminating rejects and increasing die life with Keystone "XL" Cold Heading Wire. Your Keystone Wire Specialist will show you how the *flowability* characteristics, uniform high quality and economy of Keystone "XL" Wire can help you, too. Talk over your problems with him.

Keystone Steel & Wire Company, Peoria 7, Illinois

KEYSTONE
WIRE FOR INDUSTRY

Pheoll Redesigns

Stud, Uses Keystone "XL"

to Cut Manufacturing Costs 50%

The heavy stud on the left was designed and manufactured from "XL" Cold Heading Wire by Pheoll to take the place of an equivalent part produced by other methods of manufacture. Savings to the customer amounted to 35%. The lighter stud is a further Pheoll design improvement on the same part that accomplished a savings of 50% over the original manufacturing process.



KEYSTONE STEEL & WIRE COMPANY
Peoria 7, Illinois

Mail coupon for free booklet—
COLD HEADING FACTS! Discusses methods, technical
facts, wire requirements and other data.

Name. _____ Title. _____

Company. _____

Street. _____

City. _____ State. _____



It will effectively handle all industrial acids, alkalis, solvents, organic and hydraulic fluids . . . temperatures from -120°F. to +500°F. . . is equally suited to valves, pumps, mixers, hydraulic cylinders and like equipment.

"John Crane" C-V Rings have extremely low coefficient of friction. "Break-out" friction is only slightly higher than running friction.

TWO STYLES ARE AVAILABLE:

C-VU RINGS for low pressure service

—such as control and regulator valves handling gases and fluids, where it is necessary to have a very sensitive and resilient type packing.

C-VH RINGS for high pressure service

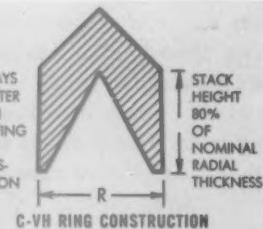
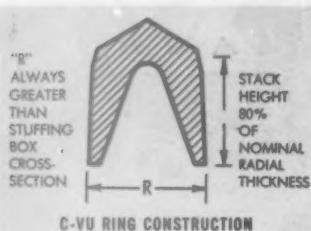
—for use in pumps, hydraulic cylinders and like services at pressures ranging to 500 psi. and over. These rings are constructed with a heavy wall heel to withstand pressure requirements. They are designed to provide voids between rings, so that as the Teflon expands due to heat, this take-up room minimizes any excess friction in the stuffing box.

"John Crane" C-V Rings are available in full line of standard sizes and male and female adaptors. Sizes can be molded to stuffing box specifications.

Request Bulletin T-110.

*"John Crane" C-V Rings are made from Chemlon—the best in DuPont Teflon.

Crane Packing Co., 6465 Oakton St., Morton Grove, Ill. (Chicago Suburb). In Canada: Crane Packing Co., Ltd., Hamilton, Ont.



Buying For An "Office Production Line"

(Continued from page 392)

ing is making at John Hancock is the sound attitude of the company's management. They have recognized that "purchasing for profit" is not an exclusive activity of manufacturing industry. They have given their purchasing department encouragement and freedom of action, and the results have been very rewarding.

Plastic Widely Used In Railroad Car

The most extensive use of plastic ever undertaken in railway car construction is embodied in the new, ultra modern 88-passenger "Pioneer III," designed and built by The Budd Company of Philadelphia.



Walls, ceilings, rest rooms and seats are of plastic

American Cyanamid Company's Laminac polyester resin was combined with fibrous glass to mold the 44 double seats, luggage compartment, baggage racks, car steps, ceiling and interior side panels, end doors, exterior bottom trim, battery boxes, washroom unit including toilet, sink, radiator grill and wall. This has brought savings in over-all weight and reduced maintenance.

A further use of plastic is in the interior partitions separating the passenger area from the lavatory and luggage compartment areas. The partitions are of plywood faced with micarta, impregnated with Cyanamid's Cyamel laminating resin.

**SEE PAGE 17
FOR
INQUIRY CARD**



For More Information Circle No. 463 on Inquiry Card—Page 17

DOW CORNING
CORPORATION

Silicone News

FOR PURCHASING AGENTS

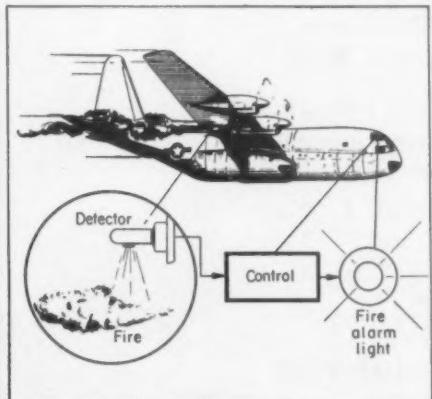
Silastic Protects Fire Detector From Vibration, Heat and Cold

Retention of its dielectric and rubbery properties at temperatures ranging from -130 to over 500 F accounts for the growing popularity of Silastic* among designers working on products for extreme temperature operation. An excellent case in point is the new "Fire-eye" fire prevention system developed for aircraft by Electronics Corporation of America, Cambridge, Mass.

Electronics engineers selected Silastic, Dow Corning's silicone rubber to protect vital parts of the system because it is the only material that will maintain a dependable seal despite years of exposure to moisture, severe vibration and operating temperatures ranging from -65 to over 400 F.



The nerve centers of the "Fireye" system are highly-sensitive miniature photoconductive cells that automatically detect fire. To assure permanent sensitivity, these cells are partially potted and hermetically sealed with Silastic. Other components, too sensitive to withstand silicone rubber curing temperatures, are sealed with RTV Silastic, a room temperature vulcanizing silicone rubber developed by Dow Corning.



Hundreds of military aircraft, including the Air Force's C-130 and C-133, already have "Fireye" protection.

No. 102

*T.M. REG. U.S. PAT. OFF.

New Anti-Freeze System for Pipelines Utilizes Silastic R Tape

Engineers at New Orleans Public Service, Inc., have recently completed installation of a unique system to supply auxiliary heat to 4000 feet of exposed steam and water lines at their A. B. Patterson station. In place of conventional steam tracers or resistance cables, a No. 16 copper wire, adjacent to the line is used to supply heat. Mineral insulated and sheathed in copper

tubing, the wire is automatically energized when ambient temperatures drop below 40 F.

One technical difficulty that arose—the probability of galvanic corrosion between steel pipe and copper tubing—was conveniently solved by wrapping the entire length of steel pipe in Silastic* R Tape, a silicone rubber tape made by Dow Corning. The tape prevents direct contact between pipe and tubing.



Steam in the pipe converts the semi-cured silicone rubber tape into a permanent rubber-like and moisture-proof jacket. Possessing high thermal conductivity, the silicone rubber jacket diffuses heat to all areas of the pipe. The installation was completed by placing glass thermal insulation over the pipe and tubing. No. 104

*T.M. REG. U.S. PAT. OFF.

Design Edition 25

DOW CORNING CORPORATION - Dept. 8910

Midland, Michigan

Please send me 102 103 104

NAME _____

TITLE _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

ATLANTA • BOSTON • CHICAGO • CLEVELAND • DALLAS • DETROIT • LOS ANGELES • NEW YORK • WASHINGTON, D. C. (Silver Spring, Md.)
Canada: Dow Corning Silicones Ltd., Toronto; Great Britain: Midland Silicones Ltd., London; France: St. Gobain, Paris

For More Information Circle No. 464 on Inquiry Card—Page 17

SPECIAL OFFER TO PURCHASING DEPARTMENTS NOW RECEIVING PURCHASING MAGAZINE

Because PURCHASING Magazine is edited specifically to help purchasing people do a better purchasing job, we feel strongly that this publication should be in the hands of *all* purchasing personnel.

As a person shouldered with the responsibility of performing an efficient purchasing function, you should have your own personal copy of PURCHASING. The articles are written just for you! New ideas . . . latest purchasing methods . . . current trends . . . market conditions . . . new products—all these should be easily accessible to you.

You shouldn't have to wait while copies pass from hand to hand—or be limited in the time to read and digest the contents. Such delays and limitations may cause you to miss an article or an idea that may result in great savings for your company.

HERE'S OUR OFFER!

Instead of paying our regular rate of \$4.00 for a one-year subscription—we will enter NEW 1-year subscriptions for your company at \$3.00 each . . . if received in groups of 4 or more.

The recipients must be NEW readers, and be active in a purchasing function.

HOW TO GET IT!

Mail the names with titles to:

Subscription Manager
Purchasing Magazine
205 E. 42nd Street
New York 17, N. Y.

That's all! The subscriptions will be entered immediately at the \$3.00 rate and your company billed.

A PAID SUBSCRIPTION IS THE ONLY WAY TO ASSURE YOURSELF OF RECEIVING EVERY ISSUE OF PURCHASING MAGAZINE.

PURCHASING Magazine—205 East 42nd Street—New York 17, New York



Widest Selection Ever Offered

Now you can get hundreds of new stock sizes of Simonds high-grade, precision-ground tool and die steel. Sizes that formerly were special are now available from stock at regular prices. Sizes you asked for to help you save time and money. "1001 sizes for 1001 uses" in either OIL or AIR Hardening type steel.

OIL HARDENING TYPE — Non-deforming, spheroidize-annealed for best machinability and consistently uniform hardenability — from Simonds' own steel mill. Extra-smooth finish with all decarburization and surface defects removed. Wide hardening range. Individually packaged (18" and 36" lengths) with simplified heat treating instructions.

AIR HARDENING TYPE — Non-deforming, spheroidize-annealed, 5% chrome — more wear-resistant yet easy to machine and heat treat with uniformly excellent results — another product of Simonds' steel mill. Extra-smooth finish with all decarburization and surface defects removed. Wide hardening range. 36" lengths. Individually packaged with heat treating instructions.

For Fast Service
from
Complete Stocks



Call your

SIMONDS
Industrial Supply
DISTRIBUTOR

Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon
Canadian Factory in Montreal, Que., Simonds Divisions: Simonds Steel Mill, Lockport, N. Y.
Heller Tool Co., Newcomerstown, Ohio
Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada

SIMONDS Flat Ground DIE STEEL



**FREE
WALL
CHART**

Ask your Simonds Distributor
for a copy of this New Chart
(18" x 19") giving full range
of Stock Sizes now available.

SIMONDS
SAW AND STEEL CO.

FITCHBURG, MASS.

For More Information Circle No. 465 on Inquiry Card—Page 17

catalog files

(Continued from page 20)

BARREL FINISHING EQUIPMENT

Recent advancements in barrel finishing techniques and methods are described and illustrated in a 52-page fully illustrated catalog. Specifications and photos of various machines are given.

Almco

For More Information Circle No. 490 on Inquiry Card—Page 17

FORK LIFT TRUCKS, TRAILERS, TRACTORS

Printed in 2 colors, a 52-page catalog includes specifications and illustrations of an entire line of fork lift trucks, platform lift trucks, load carrying trucks, tractors & trailers.

Mercury Mfg. Co.

For More Information Circle No. 491 on Inquiry Card—Page 17

OVENS FOR INDUSTRY

A wide range of industrial oven installations is covered in a 36-page, well illustrated catalog. Included

are twin rock wool ovens and cooling tunnels, foam rubber dryers, permanizers, etc.

Kirk & Blum

For More Information Circle No. 492 on Inquiry Card—Page 17

ACCESSORIES (LUBRICATION, ETC.)

Catalog No. 17-E devotes 16 pages to describe installation accessories for lubrication, hydraulic, steam, liquid and air applications. A table shows how to determine pipe threads.

J. N. Fauver Co., Inc.

For More Information Circle No. 493 on Inquiry Card—Page 17

HOSE SELECTOR

Containing the latest S.A.E. specifications on hydraulic hose, a selector permits selection of any hydraulic control hose starting from any known factor: ID, OD, minimum burst, etc.

Lee Rubber & Tire Corp.

For More Information Circle No. 494 on Inquiry Card—Page 17

ADDITIVE (CARBONIZED CELLULOSE)

The combined effectiveness for many foundry jobs of wood flour and seacoal without cost of purchasing and storing two materials forms text of bulletin FP-132.

Frederick B. Stevens, Inc.

For More Information Circle No. 495 on Inquiry Card—Page 17

INSULATION PRODUCTS

Catalog No. 19 in 20 illustrated, informative pages supplies full specifications on electrical slot insulations, wedges and fabricated parts. It contains selection guides and ordering hints.

Insulation Mfrs. Corp.

For More Information Circle No. 496 on Inquiry Card—Page 17



Drop Forgings

Made to your blueprints in many metals, in weights from $\frac{1}{4}$ to 15 pounds, depending on design. Accurate, smooth, and flash free. Their dense fibrous structure and controlled grain flow gives tremendous strength. Machined if desired.

Upset Forgings

In a great variety of metals and alloys. High strength parts accurately produced —no flash, no blowholes. Excellent machining qualities.

Special Fasteners

Made to your specifications in any metal or alloy, ferrous or non-ferrous, ground or unground. Bolts to 2" diam., studs to 2 $\frac{1}{2}$ " diam. Fully dependable. Cut or precision rolled threads.



Exclusive New England Sales
Agent for all products of
Cleveland Cap Screw Co.

For More Information Circle No. 466 on Inquiry Card—Page 17

RHODE ISLAND TOOL COMPANY

SINCE 1834

150 WEST RIVER STREET, PROVIDENCE 1, R. I.

PURCHASING



Pinpoint flexible light or powerful 1,000 ft. spotlight—yours automatically at flick of switch. Slide-out probe light extends 10½", reaches around corners, in deep recesses, thru small clearances—gets into hard to reach dark spots for close inspection of products and equipment.

NO. 75 LP LEAKPROOF BATTERIES
A top-quality, long-life battery with leak-proof guarantee on every cell.

U. S. ELECTRIC MFG. CORP. 222 WEST 14th STREET, NEW YORK 11, N.Y.

For More Information Circle No. 467 on Inquiry Card—Page 17



You can package it better at less cost in a **Clearsite** plastic container

- 1/5 the weight of glass
- Easy to print
- Shatter-proof
- Moisture tight, dust free

There is a wide variety of shapes, sizes, colors and closures available to give your particular product extra sales sparkle. Write for free samples and descriptive literature to Dept. L

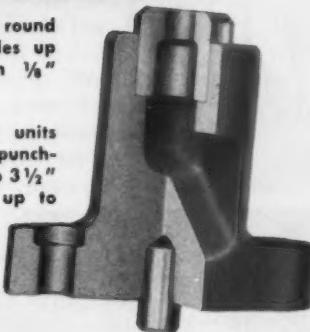
CELLUPLASTIC CORPORATION
Sales and Executive Offices Newark, New Jersey

For More Information Circle No. 468 on Inquiry Card—Page 17
OCTOBER, 1956



For punching round or shaped holes up to 2" dia. in $\frac{1}{8}$ " mild steel.

Other WALES units available for punching holes up to 3½" dia. in stock up to $\frac{3}{4}$ " thick.



● You can always save TIME and MONEY with WALES CD Units. ELIMINATE stripper plates, custom punches and dies.

CD Units are mounted in sets—outside the press. Change set-ups in 'jig time'. All parts are interchangeable. Maintenance costs are pared to the bone. Alignment is automatic and accurate. Press down-time is practically non-existent. For multiple hole punching, nothing equals the speed and simplicity of WALES CD punch and die assemblies.



Showing WALES CD Units in same set-up with WALES BL Hole Punching Units and WALES Type N Notching Units in punch press.



Send for BULLETIN No. 19 J
The CD story is factual and sure to suggest many ways to enable your hole punching shop to make more money. Sent free.

WALES Strippit COMPANY

"...the Wales-Way is the PLUS-PROFIT way"
345 PAYNE AVE.—North Tonawanda, N.Y.

WALES-STRIPPIT OF CANADA LTD., HAMILTON, ONT.

For More Information Circle No. 469 on Inquiry Card—Page 17

THERE'S A

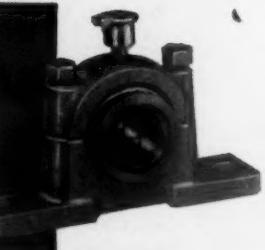
Randall

PILLOW BLOCK
AND BALL ASSEMBLY
FOR **EVERY**
TYPE APPLICATION



The unique Randall ball assembly is in its several different styles, a basic part of every Randall Pillow Block. It features the exclusive Randall "deep well" reservoir with controlled double lubricated graphited bushing. It is readily adapted to a variety of different housings and may be purchased separately.

NORMAL DUTY PILLOW BLOCK. A general service pillow block for normal duty on small shafts and for heavier duty on larger shaft sizes. Double lubricated with graphited phosphor bronze bushing in wool packed oil reservoir housing. For shafts $1\frac{1}{2}$ " to $3\frac{15}{16}$ " inclusive.



FLANGE OR SIDE MOUNT PILLOW BLOCK. A top quality pillow block for the most exacting service. Double lubricated with graphited phosphor bronze bushing in wool packed oil reservoir housing. Widely used in air moving equipment, conveyors, and agricultural equipment. Side mounting only. For shafts $1\frac{1}{2}$ " to $3\frac{15}{16}$ " inclusive. Other light and normal duty flange units available in three and four bolt styles.



SINTERED BUSHING SERIES. Sintered bronze bushings in streamline one-piece steel housings. Wool packed oil reservoir. Mounts in any position. Excellent for general service on smaller shafts $1\frac{1}{2}$ ", $2\frac{1}{2}$ ", $3\frac{1}{2}$ ", $4\frac{1}{2}$ ", $5\frac{1}{2}$ ", and $1\frac{1}{2}$ ".



Ask your area distributor for more complete information and prices on Randall Pillow Blocks. The most complete line available anywhere.

BRONZE BAR STOCK

BRONZE BUSHINGS

PILLOW BLOCKS

SHEET LUBRICATOR

GRAPHITED BEARINGS

THRUST WASHERS

SAFETY COLLARS

BRONZE CASTING

RANDALL GRAPHITE BEARINGS, INC.

1014 South Greenlawn Avenue, Lima, Ohio

For More Information Circle No. 470 on Inquiry Card—Page 17

402

in Wheels, too...

TWO

Do the Job
BETTER
THAN **ONE!**



USE DUAL
ALLIED WHEELS

In Place of ONE Larger,
Expensive Wheel!

Gain These Advantages:

- **LOWER COST**—Reduce wheel cost! Buy Dual wheels for less than one single conventional type!
- **GREATER FLOTATION**—More tire surface on the ground. Spreads load suspension!
- **EQUAL or GREATER LOAD CAPACITY**—Load weight is distributed!
- **BETTER TRACTION**—On wet or dry surfaces; more tire gripping area!

ALLIED



STOCK SIZES, TYPES — Or CUSTOM BUILT!

ALLIED Wheel Products, Inc.

Dept. P • 27 Broadway • Toledo 4, Ohio

For More Information Circle No. 471 on Inquiry Card—Page 17



Brookfield Tool Holders make tool set-ups easy!

Now, without bushings or collets, on the first try you can set up drills, counterbores, reamers or cutters for almost any machining operation. Precision ground V-jaw vises, Brookfield Tool Holders make even toughest set-ups a cinch. With one wrench, insert the tool, tighten the jaw, then float the tool into dead center position and tighten. It's as easy as that!

FREE! Descriptive illustrated brochure, plus price and specification lists.

BROOKFIELD, INCORPORATED

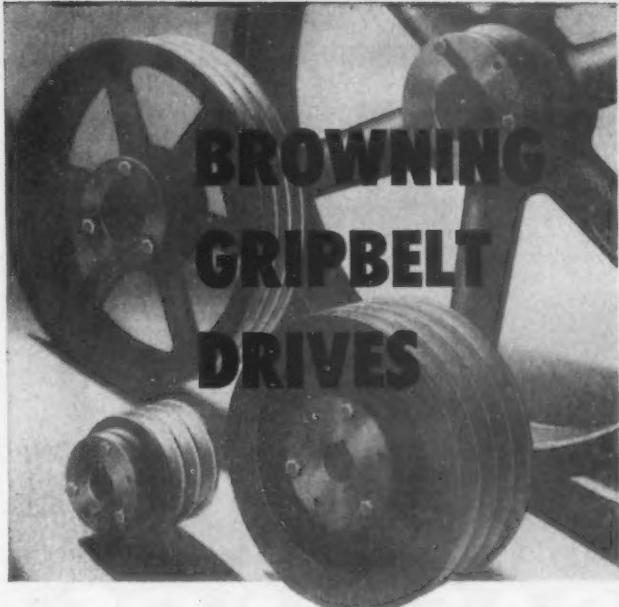
STOUGHTON 118, MASSACHUSETTS

West Coast Representatives:

Jones Industrial Sales, 917 Geneva St., Glendale 7, Cal.
Karls Machinery Sales, 35 North Weidler St., Portland 12, Oregon

For More Information Circle No. 472 on Inquiry Card—Page 17

PURCHASING



BROWNING GRIPBELT DRIVES

The most complete V-drive line. Thousands of stock size and bore combinations in single and multiple groove sheaves, variable pitch, die cast, pressed steel, cast iron. And the widest selection of V-belts—from FHP to steel cable, including Griplink, Griproll and new Poly-V. There's a Browning Gripbelt drive for your every job. Ask distributor or write us for free catalog GC101.

Browning MANUFACTURING COMPANY
MAYSVILLE, KENTUCKY

For More Information Circle No. 473 on Inquiry Card—Page 17

HAMMER BRAND

TAILOR-MADE PAPERS
for
PROTECTIVE PACKAGES



NON-CORROSIVE

GRADE A BARRIER MATERIAL

PREVENTS — Corrosion on
Bearings, Metal, Precision Parts,
Surgical Instruments, Tools, Etc.

Can be TREATED or MOISTUREPROOFED for greater
PROTECTION

Greaseproof Glassine

Single Ply

PLAIN • WAXED • TREATED • COATED

Duplex • Triplex

WAX LAMINATED • GLUE MOUNTED
to Glassine • Foil • Kraft • Sulphite
Inquiries invited

"79 years of service"

THE H AMERSLEY MFG. CO.
GARFIELD, NEW JERSEY
PAPERMAKERS

For More Information Circle No. 474 on Inquiry Card—Page 17
OCTOBER, 1956



CHANGING BLADES on the Roto-Rooter. Five to ten blade changes are sometimes necessary during a single cleaning operation—and that means a real workout for the set screw socket.

"Outlasts hex socket 30 to 1...!"

That's the story we get on Bristol's famous Multiple-Spline socket, from James B. Thomas, Shop Superintendent, for Roto-Rooter Corporation, Des Moines, Iowa.

"The best we have ever achieved with a standard hex socket screw," says Mr. Thomas, "is about 25 times of tightening and loosening before the head stripped out. But we consistently exceed 750 tightening cycles without damaging the Bristol Multiple-Spline screws. . . . On this one feature alone the Bristol screw is 3000% better from a fatigue standpoint!"

These Bristol Socket screws hold cutting knives at the end of 120 feet (or more) of coiled-spring flexible shafting that the exclusively franchised Roto-Rooter* cleaning machine snakes through clogged sewers. Screw sockets on the Roto-Rooter must stand up because in changing blades they undergo five to ten tightening cycles on each cleaning job.

Chances are, your socket screws won't have to take such punishment. But the Multiple-Spline's ability to take the wrench lets you set screws extra tight to resist shock and vibration. And for less critical applications still, you can get precision Bristol hex socket screws.

Bristol Multiple-Spline or hex socket screw products—the most complete line on the market—are sold through leading industrial distributors. Find out about them today!

A.6.15

DETAIL OF SLIP CHUCK on Roto-Rooter® and Wrench.

*Reg. Trade Mark

Precision socket screw manufacturers since 1913



*Made in sizes as small as No. 0 in Alloy Steel and Stainless Steel. Cap Screws up to 1½".

THE BRISTOL COMPANY, Socket Screw Division, Waterbury 20, Conn.

For More Information Circle No. 475 on Inquiry Card—Page 17

new PIPING ECONOMY for handling corrosives



Carpenter PVC pipe and fittings

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"The Lustre that Lingers"

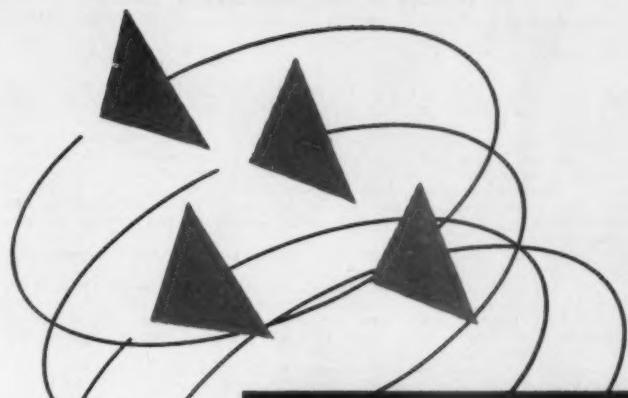


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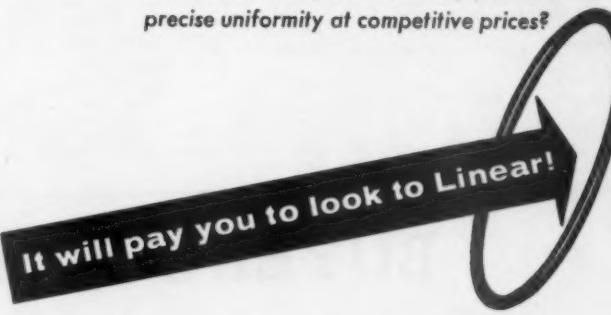


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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MAR. 3, 1933
Of Purchasing, published monthly at Orange, Conn. for November 1, 1956.
State of New York { ss.
County of New York

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Ray Richards, who, having been duly sworn according to law, deposes and says that he is the Publisher of the magazine "Purchasing" and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537 Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

B. P. Mast, Chairman of the Board, 205 East 42nd Street, New York City 17; Harvey Conover, President and Treasurer, 205 East 42nd Street, New York City 17; Ray Richards, Vice-President and Publisher, 205 East 42nd Street, New York City 17; Stuart Heinritz, Editor, 205 East 42nd Street, New York City 17.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given).

C-M Business Publications, Inc., 205 East 42nd Street, New York City 17; Conover-Mast Publications, Inc., 205 East 42nd Street, New York City 17; Harvey Conover, Sr., 205 East 42nd Street, New York City 17; B. P. Mast, Sr., 205 East 42nd Street, New York City 17.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is . . . (This information is required from daily publications only.)

RAY RICHARDS

(Signature of Publisher)

LEO F. HAGGERTY

Notary Public

(My commission expires March 30, 1957.)

Sworn to and subscribed before me this 5th day of September, 1956,

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View of Whiting Trackmobile undercarriage, showing Morse Roller Chain Drives. Employs single-, double-, and quadruple-width chain. Photo at left shows Trackmobile pushing loaded coal car to dumper. Rubber-tired wheels at ends lower to permit operation of vehicle off railroad tracks.

This powerful, economical little Trackmobile, manufactured by the Whiting Corporation (Harvey, Illinois), does the work of a large locomotive; easily handles loads averaging 100 tons.

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letters

EAGER TO LEARN

Last year's Purchasing Conference Series met with such a tremendous demand that we had to repeat a couple of the programs, with the result that this coming year we are running repeat sessions on each of the conferences. In other words, each conference is being run on two consecutive days for a different group of registrants, to accommodate a larger number of men.

Our Purchasing Techniques Institute that was scheduled last February met with such a demand that we have already repeated it three times and have scheduled it for a fourth time, September 18-20.

In addition to these repeat performances, we are presenting a two-day institute on Vendor Interviewing. The basis of this program is that purchasing people are spending too much time with salesmen because they are not getting the information that they need, or are spending too much time in getting it. In surveys that we made, we have found no top purchasing people who have ever had any specific training in interviewing. This program, with a limited enrollment of 25, will attempt to give these men the tools and techniques of interviewing salesmen, with the objective of bettering their sales interviews.

W. P. Stilwell, Asst. Dir.
Industrial Management Institute
The University of Wisconsin
Madison, Wis.

PROFESSIONAL PURCHASING

I have just finished reading your page in the August issue of PURCHASING, regarding purchasing as a profession. Your suggestions to elevate the calibre of purchasing men are to be highly commended. In Canada, and to a somewhat lesser degree in the United States, I feel that there is a large percentage of our membership who do not truly qualify for the title of Purchasing Agent. As you know, the British Purchasing Officers Association does require members to pass certain tests before they are accepted, and I feel sure the only way we can bring the calibre of N.A.P.A. and C.A.P.A. up to the desired level is to establish a somewhat similar system in our own organizations.

As you are undoubtedly aware, N.A.P.A., C.A.P.A., and P.O.A. are now considering the possibility of an International Federation. It may be that through such a setup, rules and conditions for membership, which would in-

clude examinations, would ultimately be arrived at. This would go far in settling that old controversial problem of eligibility that has bothered both N.A.P.A. and C.A.P.A. for many years.

Eric J. Wain, Chairman
Committee on International
Federation
Canadian Assn. of Pur. Agts.
Toronto, Canada

SMALL ORDERS ARE NOT UNIMPORTANT

I wonder whether any of your readers may be thinking along the same lines that I am on all this current fuss about quick ordering systems for petty items. To a large extent, it seems to me, some of these systems amount to a negation of the purchasing function. The work that the buyer should be doing is either being transferred to another department, or is being sloughed off as of no importance.

Perhaps because I am an old timer and was brought up in a small company, I pay too much attention to purchases of small amounts. On the other hand, I can't forget the old adage that, "If you look after the pennies, the dollars will look after themselves."

I can't help but feel that it is poor training for buyers to use a lot of these short cut methods. I believe that in training a buyer, he should be told to investigate every item he buys and to know what it is, how much it costs, where he can get it, and whether he is doing the best he can on that item or whether some other supplier could do better. Of course, when you have once thoroughly investigated these items, the repeat orders can be handled quite easily.

Probably most of the above is an aside to my main theme that a Purchasing Department is set up to do the purchasing, and they have a purchase order form and procedure. If that form will not enable them to procure some of their needs most economically, then why don't we change the form and the procedure so that it is the most economical and desirable for most of our needs?

Apparently, from all the articles that have appeared, and from all the ingenious—or lazy—methods that have been devised to sidestep the responsibility for making small purchases, the great majority of purchasing agents (at least of those who write for publication) do not agree with my thinking on the subject. Perhaps I am a lone wolf. However, I do

believe that the matter deserves full discussion on both sides. It may be that some one who shares my viewpoint, and sees merit in these contentions, would be willing to present this side of the picture.

W.W.

(Ed. note: Our correspondent, who, for reasons of company policy, must remain anonymous and cannot write for publication, is a purchasing agent of long and successful experience. Starting with a relatively small company on the eastern seaboard, he subsequently joined the central purchasing department and advanced to become divisional purchasing agent for a large national company. Currently he heads the purchasing department of a large organization in the middle west, spending millions of dollars annually with full accountability for every expenditure large and small. In the course of his previous business connections, he has contributed valuable and constructive material to PURCHASING Magazine, and he has been active in Association affairs throughout his career.)

DANGERS OF INFLATION

I have read with great interest your survey of the effects of the steel strike (Purchasing Opinion Poll, September issue). Enclosed are copies of a recent letter to the "New York Times" on this subject, plus a speech delivered by me a few months ago before the Alumni of Columbia University, which I thought might interest you.

Philip Cortney, President
Coty, Inc.
New York, N.Y.

(Ed note: Mr. Cortney's address on "Our Managed Inflation Crisis" was published in the May 24, 1956, issue of *The Commercial and Financial Chronicle*. His letter to the editor of the *New York Times* on "Effects of the Steel Strike" was published in the July 11th issue of that newspaper.)



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OCTOBER, 1956

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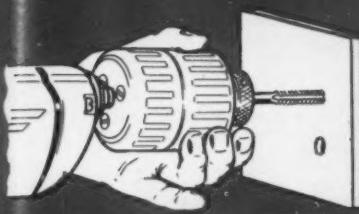
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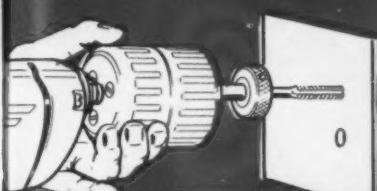
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with ordinary portable drills



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The Supreme PUSH-PULL TAPPER is an instant-reversing speed reduction unit made expressly for tapping. By means of the adapters it can be attached easily to either the spindle or chuck of any portable drill. Detachment after use is equally simple. The speed reduction of 7:1 gives more than adequate power to tap in all materials, and the instant-reversing means that the direction of the tap can be reversed without stopping the drill motor. Thus the tap can be moved into and out of the hole at will.

Tap breakage is held to an absolute minimum when the PUSH-PULL TAPPER is used. This is because the operator has a better "feel" for his work. When in use the TAPPER housing is held in the finger-tips, and any unusual strain is felt immediately. Releasing the fingers stops the tap instantly.

One owner, using the PUSH-PULL TAPPER on an important government job, tapped 1500 holes in one casting without one deficient hole, and without

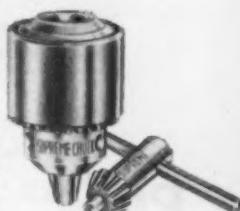
a single broken tap. Another decreased the amount of tap breakage enabling them to change to a tapping operation that resulted in increased assembly production.

Examine your own tapping operations, and you'll see that the PUSH-PULL has advantages you can utilize. It handles all taps up to 5/16" diameter, and the five necessary collets are included. Also included are wrenches for tightening collets and for removing or tightening PUSH-PULL TAPPER to drill spindle. Ask your Mill Supply Distributor or write direct.

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Look for these great chucks on the new tools you buy . . . specify them for all replacement. The exclusive Supreme hardening process assures long, accurate, trouble-free service.



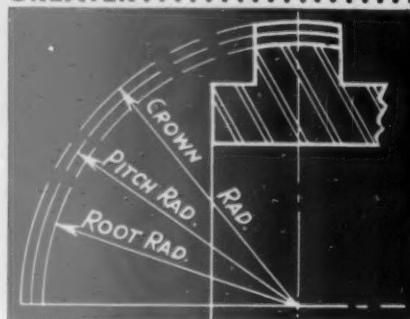
Complete PUSH-PULL TAPPER
Kit includes 5 collets to handle
all taps up to 5/16" diameter.

List price is \$2995
complete. (Taps not included.)

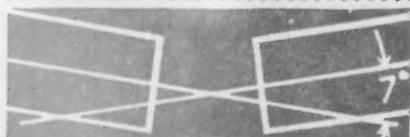
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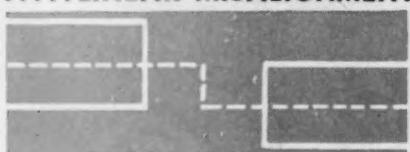
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FORMATION PERMITS
GREATER . . .**



ANGULAR OR . . .



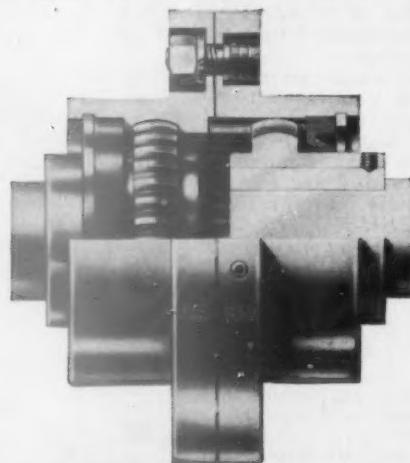
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The Philadelphia SPHEREFLEX COUPLING features a Spherical cut tooth which allows a ball and socket action between mating teeth up to 14° angular misalignment—and due to this angular capacity, a much greater amount of parallel misalignment is possible, which varies directly as the pitch diameter of the gears. All this is accomplished by gearing having a minimum back-lash.

By using Spherflex Couplings, you can eliminate excessive bearing loads and cyclical bending stresses, which are caused by misalignment between shafts.

Send for Catalog C-560, and be convinced.



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Special punch-points and mating die buttons of any shape or size can be made to your specifications and will have all the features of standard R-B equipment. These inherent R-B features include: snap-action radial alignment and vertical locking of special punches and die buttons, speed and ease of insertion or removal, and complete interchangeability. Just a push, a twist and "click" the R-B punch or die button is locked in the retainer—no additional keying required.

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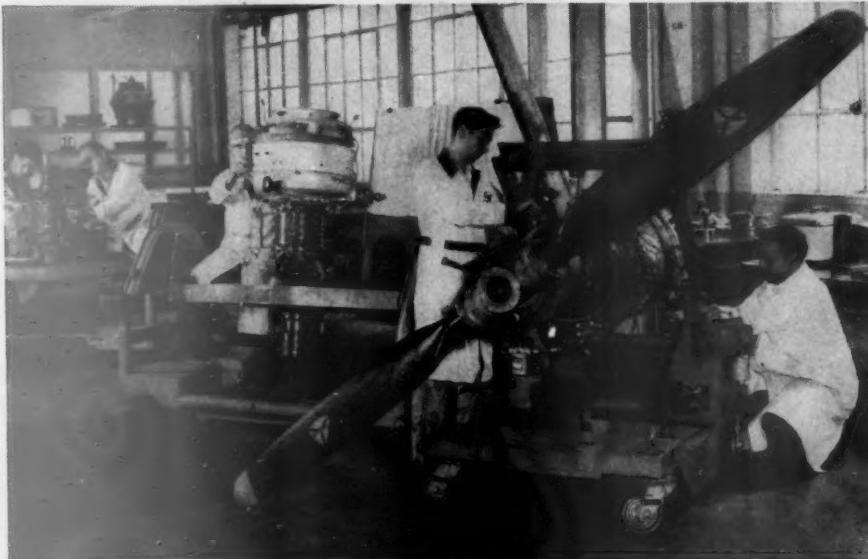
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For More Information Circle No. 485 on Inquiry Card—Page 17

MATERIALS-HANDLING NEWS

★ Panel Discussions by Bassick, World's Largest Manufacturer of Casters and Floor Protection Equipment ★

"Floating-Hubs" guard new Lycoming XT53



Damp out vibration

This compact, high-powered XT53 gas turbine engine, a new development of the Lycoming Division, Avco Mfg. Corp., gets special attention throughout assembly. The stand it's riding on is equipped with Bassick Floating-Hub casters which have a built-in snubbing action designed to prevent damaging shock forces, vibration, or "fretting corrosion." Lycoming personnel find the casters also permit easy movement of the stands to the desired position. Maybe Floating-Hub shock absorption could help protect your products and floors.

Pianos roll



Those are Bassick casters on both the dolly and the pianos above. They're 3 of the 231 Bassick-equipped Shoninger pianos that National Piano Corp. recently delivered to New York public schools. Maybe you've a hard-to-handle product that the easy action of Bassick casters could help move easily.



Banking on casters

That's what they do here in the 4th floor Transit Department of the Republic National Bank of Dallas. With this battery of Bassick-equipped business machines, the bank handles 290,000 individual items of business a day swiftly and efficiently. Is there somewhere in your business where Bassick casters can help you increase speed or efficiency?

Tough casters here

The business end of this RAM sweeper rides on three dual wheel heavy-duty Bassick Floating-Hub casters. On this rugged street cleaning duty the casters are "working very well," reports the RAM Equipment Co. Inc. of Minneapolis, manufacturers of the sweeper.



From incubators...



"First ride that many lucky babies ever take is in this Penn "600" incubator on Bassick casters. Smooth, quiet, dependable rolling and swivelling are needed here—which is why the American Sterilizer Co. uses Bassicks. The famous "Diamond-Arrow" two level ball race construction assures easy swivelling.

...to coffins



Here, the production of coffins moves along on Bassick grooved wheel casters. They're running on a strong, self-cleaning inverted angle iron track. Maybe this kind of inexpensive assembly line set up could speed work and cut costs for you, too.

Check your distributor

He can help you and also save you money by suggesting improved materials-handling products like these Bassick sealed casters for loads up to 1500 lbs. apiece. Sealed bearings keep lubrication in—dirt, water and debris out. This extends caster life, virtually eliminates maintenance, and avoids dangerous spillage of grease on floors.



64

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S Sweet's
or write for copy

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Bassick
A DIVISION OF
SW
MAKING MORE KINDS OF CASTERS...MAKING CASTERS DO MORE

For More Information Circle No. 486 on Inquiry Card—Page 17

*Gee! No wonder
he's so upset!*

**You took all his
FORT HOWARD
PAPER TOWELS!**



... And that's villainy at its worst, for there's something special about Fort Howard Paper Towels in their combination of Controlled Wet Strength (for strength *plus* softness and absorbency), Stabilized Absorbency (for dependable drying ability) and Acid Free Paper (for better, kinder "feel").

Besides, only Fort Howard offers paper towels in 18 grades and folds—so there's one to fit the needs of *your* washroom, with outstandingly low-cost user satisfaction.

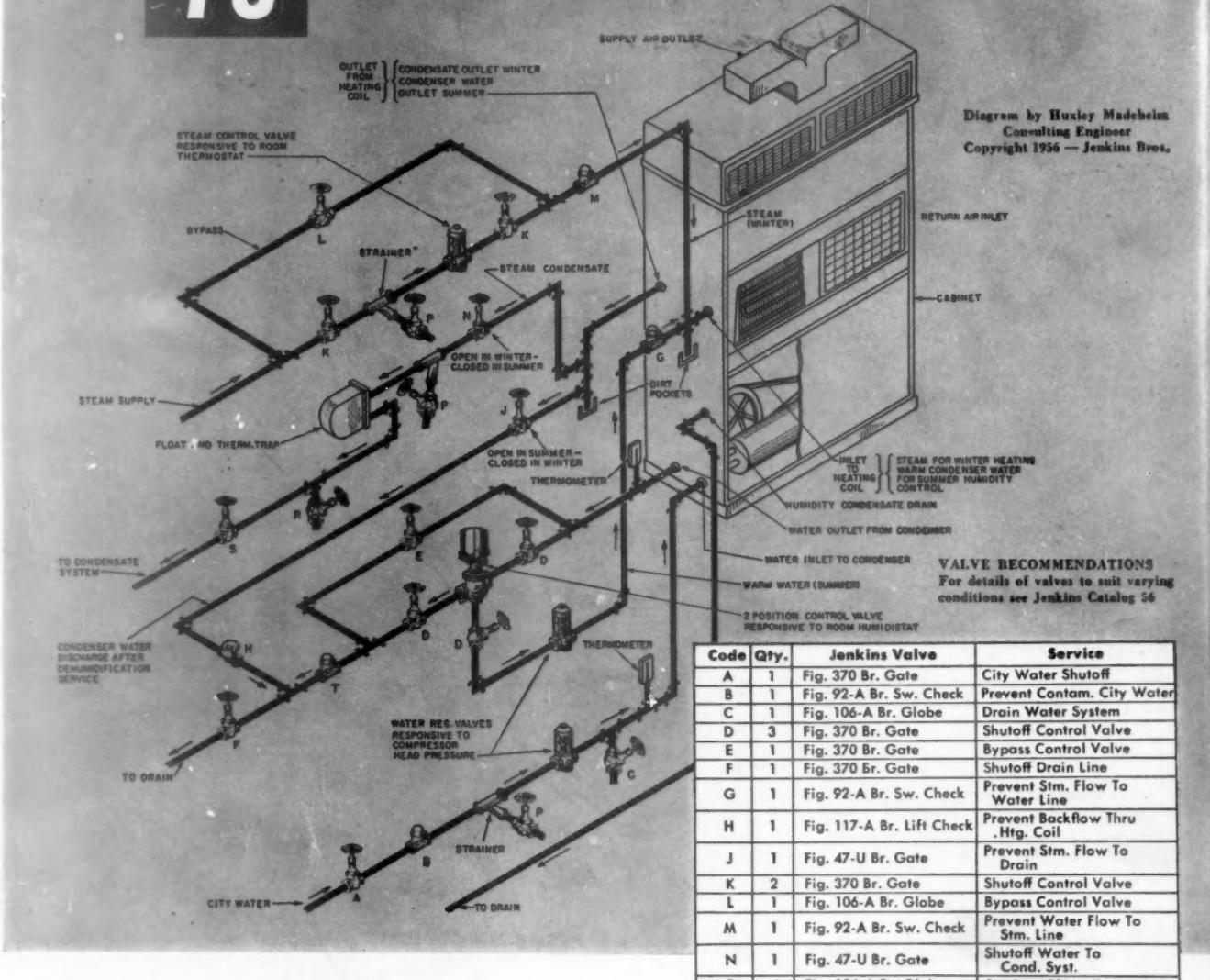
No difference in paper towels? Call your Fort Howard distributor salesman today—and see! He'll recommend the towel that fits *your* needs exactly!



FORT HOWARD PAPER COMPANY, GREEN BAY, WISCONSIN

For 37 Years Manufacturers of Quality Towels, Toilet Tissue
and Paper Napkins

For More Information Circle No. 152 on Inquiry Card—Page 17



How to plan piping connections for an all-year SELF-CONTAINED AIR CONDITIONING UNIT

A factory-built "package", the self-contained air conditioning unit shown in this layout is designed for both summer cooling and winter heating. In this particular system, it is assumed that steam is available for winter heating, and that the condenser is served by the city water supply. The condenser water discharge is used for the reheat necessary for humidity control.

The hookup for humidity control, particularly important for installations such as in night clubs, auditoriums, and others having a high moisture removal load, is shown in the diagram.

During the winter season, the heat output is regulated by a modulating steam valve which operates in response to a room thermostat. In the summer, another room thermostat starts the compressor when cooling is required, and the two-position water

control valve, located as shown in the diagram, permits the water to flow to the drain.

When dehumidification is required without cooling, a room humidistat keeps the compressor in operation, but changes the position of the two-position water control valve so that the condenser discharge flows to the heating coil.

Two water-regulating valves are employed as illustrated. One, in the city water line, is set in the usual manner to maintain a predetermined head pressure on the compressor by varying the amount of water flowing into the condenser. The second, in the line from the condenser to the heating coil, is set for a head pressure higher than the pressure on the feed control valve.

This secondary condenser water control reduces cooling capacity and, at the same time, provides hotter water for reheat in the

heating coil, thus serving to maintain proper relative humidity without excessive reduction of temperature. The amount of reheat obtained is approximately equal to the cooling provided by the unit, so that the net effect is that of dehumidification only, without cooling.

Consultation with accredited piping engineers and contractors is recommended when planning any piping system.

Enlarged diagram and full description of this layout free on request. Ask for Layout No. 78, Jenkins Bros., 100 Park Ave., New York 17.



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